User Manual

of WLY scales

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1. INTENDED USE

WLY scales are the response for the market demands concerning simplicity of operation and high functionality. They are intended for quick and precise weighing in industrial and laboratory conditions. The state-of-the-art weighing terminal with TFT 5.7” colour graphic displays with touch panels allows for intuitive operation without using keys.

Scales are equipped with 2 USB interfaces, 2 RS232 connectors, port Ethernet and 4 inputs/4 outputs (digital). They can cooperate with barcode scanners, receipt printers, label printers, transponder card readers (RFID) and standard PC equipment: mouse, keyboard, pendrives (limited use).

2. PRECAUTIONARY MEASURES

A. Please, read carefully this user manual before and use the device according to its intended use;

B. Weighed loads should be placed in possibly central part of scale pan;

C. Do not clean the device with agents causing corrosion;

D. Weighing pan should be loaded with goods having gross mass lower than maximal capacity of the scale;

E. Do not leave loads on the pan for longer period of time ;

F. In case of failure, immediately disconnect scale power supply;

G. Devices that are to be withdrawn from usage should be utilized according to the law.

3. WARRANTY CONDITIONS

A. RADWAG is obliged to repair or change those elements that appears to be faulty because of production and construction reason,

B. Defining defects of unclear origin and outlining methods of elimination can be settled only in participation of a user and the manufacturer representatives,

C. RADWAG does not take any responsibility connected with destructions or losses derives from non-authorized or inappropriate (not adequate to manuals) production or service procedures,

D. Warranty does not cover:

- Mechanical failures caused by inappropriate maintenance of the device or failures of thermal or chemical origin or caused by atmospheric discharge, overvoltage in mains or other random event,
- Inappropriate cleaning.

E. Forfeiture of warranty appears after:

- Access by an unauthorized service,
- Intrusion into mechanical or electronic construction of unauthorized people,
- Installing another operating system,
- Removing or destroying protection stickers.

F. The detailed warranty conditions one can find in warranty certificate.

G. Contact with the central authorized service:
+48 48 384 88 00 ext. 106 or 107.

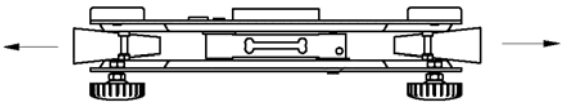
4. UNPACKING AND MOUNTING

4.1. Scales of WLY/C series

A. Take the device out of the package,

B. Put the scale on an even stiff ground,

C. Remove transport protection:



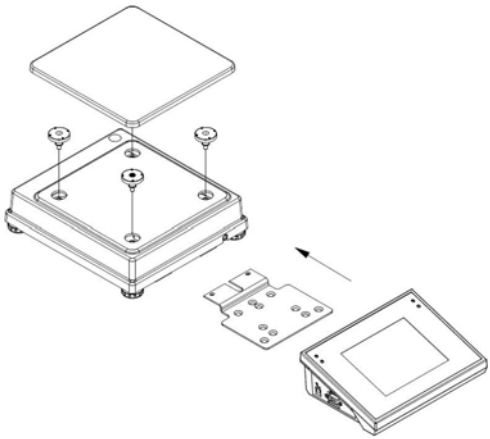
D. Scale should be levelled by turning regulation feet. Levelling is correct if air bubble is situated in the central position:

4.2. Scales of WLY/D series

A. Take the device out of the package,

B. Put the scale on an even stiff ground,

C. Fit the pan and the bracket under the device according to the drawing:

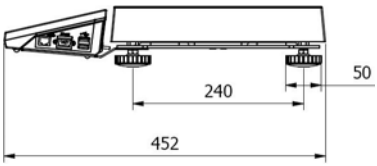


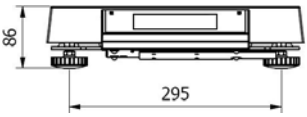
E. Scale should be levelled by turning regulation feet. Levelling is correct if air bubble is situated in the central position:

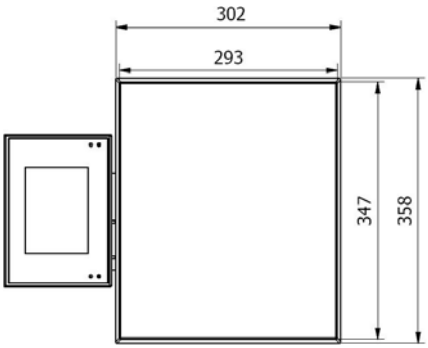
5. SCALE STRUCTURE

5.1. Main dimensions

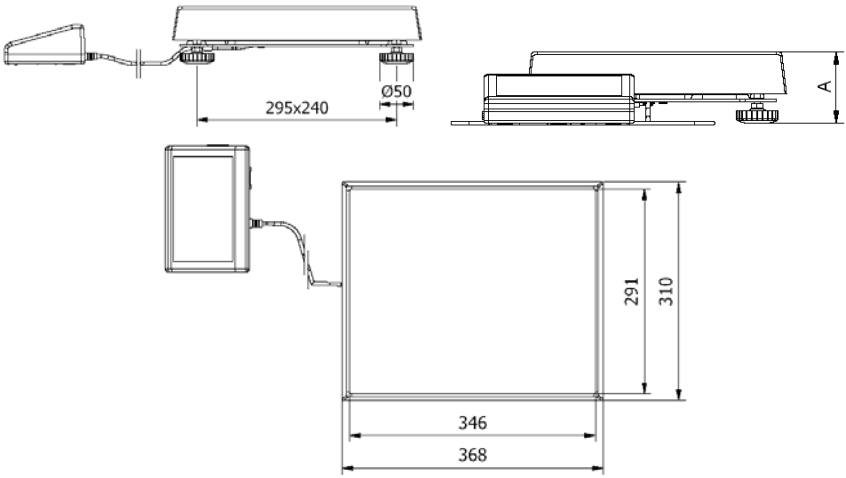
5.1.1. Scales of WLY/C series



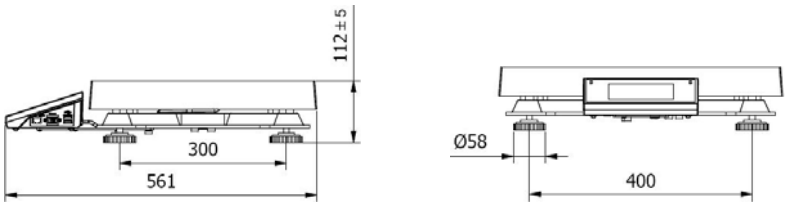


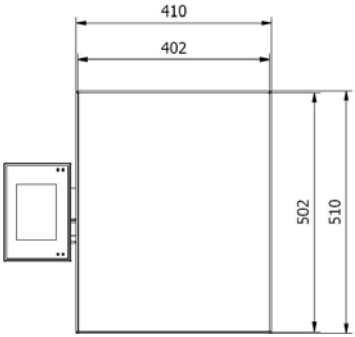


WLY/C1/R series – main dimensions

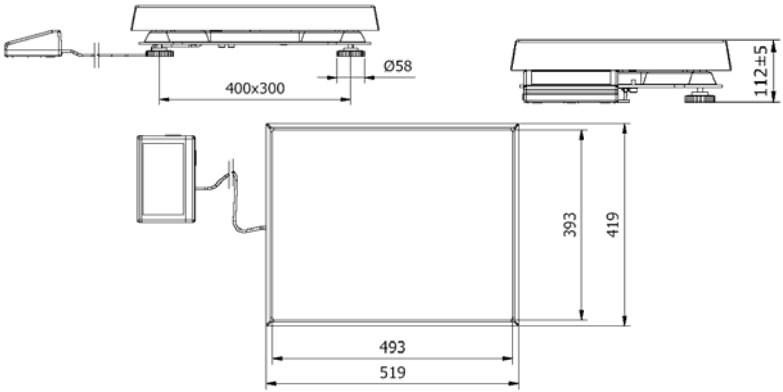


WLY/C1/K series – main dimensions



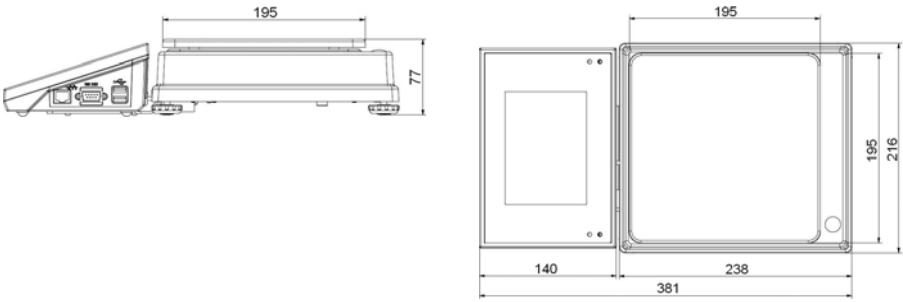


WLY/C2/R series – main dimensions



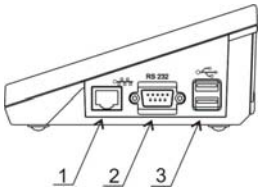
WLY/C2/K series – main dimensions

5.1.2. Scales of WLY/D series

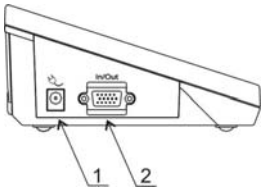


5.2. Description of connectors

5.2.1. Connectors' description in PUE 7

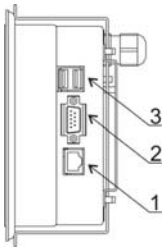


1 – Ethernet RJ45
2 – RS232 (COM1)
3 – USB

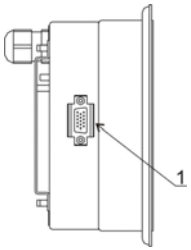


1 – power supply socket
2 – I/O, RS232 (COM2)

5.2.2. Connectors' description in PUE 7P

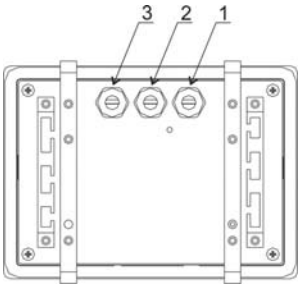


1 – Ethernet RJ45
2 – RS232 (COM1)
3 – USB



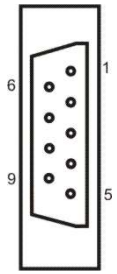
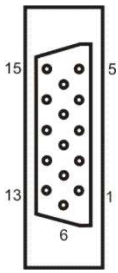
1 – I/O, RS232 (COM2)

5.2.3. Description of glands PUE 7P



1 – Supply cord gland
2 – Gland for platforms 1, 2
3 – Gland for platforms 3, 4

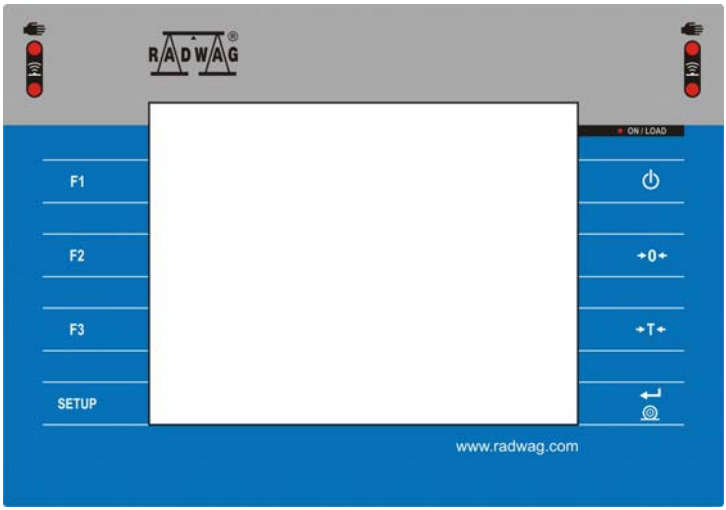
5.2.4. Connector with RS232 and I/O

	**RS232 - DB9/M (male),** **top view:** Pin2 - RxD Pin3 - TxD Pin5 - GND
	**I/O, RS232 DSUB15/F (female),** **top view:** Pin1 - GNDWE Pin2 - OUT1 Pin3 - OUT2 Pin4 - COMM Pin5 - 6÷9VDC Pin6 - IN4 Pin7 - IN3 Pin8 - TxD2 Pin9 - 5VDC Pin10 - GNDRS Pin11 - IN2 Pin12 - IN1 Pin13 - RxD2 Pin14 - OUT4 Pin15 - OUT3

6. GETTING STARTED

- After the terminal is connected to power the ON/LOAD diode starts to light.
- Press to start the operating system loading procedure. Windows CE together with RADWAG software loading is signalled by blinking the red diode ON/LOAD.
- When the loading procedure is completed the main software window appears.

7. KEYPAD OVERLAY



8. FUNCTIONS OF KEYS

Key	Description
⏻	Turning on/off the scale
→0←	Zeroing
→T←	Tarring
↵	Printing out the result or confirming some entered data
SETUP	Function key (entering the menu)
F1	Selecting products
F2	Selecting contractors
F3	Inscribing a tare value

9. PROGRAM STRUCTURE

The main menu has been divided into twelve functional groups.
In every group there are parameters of similar use.

9.1. Main menu items

Icon	Description
	Scale
	Databases
	Working Modes
	Communication
	Devices
	Display
	Inputs / Outputs
	Authorization
	Units
	Other
	User Calibration
	Info

9.2. Inventory of parameters

9.2.1. Scale parameters - weighing

Icon	Description	Value
	Median Filter	0.5
	Filter	Fast
	Autozero	Yes
	LO threshold	0
	Last digit	Always

9.2.2. Working modes

Icon				Description	Value
				Weighing	-
				Save Mode	Manual, each stable
				Down-weighing	No
				Checkweighing	No
				Tare mode	Single
				Labelling mode	-
				Number of labels	1
				No. of cumulative labels	1
				No. of CC labels	1
				C label automatic triggering	-
				Mode	None
				Threshold	100

				CC label automatic triggering	-
				Mode	None
				Threshold	100
				Statistics	Global
				Counting pieces	-
				Save Mode	Manual, each stable
				Down-weighing	No
				Checkweighing	No
				Tare mode	Single
				Labelling mode	-
				Number of labels	1
				No. of cumulative labels	1
				No. of CC labels	1
				C label automatic triggering	-
				Mode	None
				Threshold	100
				CC label automatic triggering	-
				Mode	None
				Threshold	100
				Statistics	Global
				Automatic correction of reference mass	No
				Deviations	-

				Save Mode	Manual, each stable
				Down-weighing	No
				Checkweighing	No
				Tare mode	Single
				Labelling mode	-
				Number of labels	1
				No. of cumulative labels	1
				No. of CC labels	1
				C label automatic triggering	-
				Mode	None
				Threshold	100
				CC label automatic triggering	-
				Mode	None
				Threshold	100
				Statistics	Global
				Recipes	-
				Ask for multiplier	No
				Ask for number of cycles	No
				Confirm batching ingredients manually	No
				No. of weighings for calculating the correction	0
				Global	-
				Batching outputs	-

				Output 1	0
				Output 2	0
				Output 3	0
				Output 4	0
				Bulk batching output	-
				Output 1	0
				Output 2	0
				Output 3	0
				Output 4	0
				Correction	0
		MAX		Maximum correctional value	0
				Weighing animals	-
				Checkweighing	No
				Tare mode	Single
				Labelling mode	-
				Number of labels	1
				No. of cumulative labels	1
				No. of CC labels	1
		AUTO		C label automatic triggering	-
				Mode	None
				Threshold	100
		AUTO		CC label automatic triggering	-
				Mode	None
				Threshold	100

				Statistics	Global
				Averaging time	5
				Automatic mode	No
				Density	-
				Standard liquid	Water
				Temperature	21
				Standard liquid density	1
				Sinker volume	0
				Ask abort sample number	No
				Pycnometer mass	0
				Pycnometer density	0
				Unit	g/cm^3
				Save Mode	Manual, each stable
				Checkweighing	No
				Tare mode	Single
				Statistics	Global

9.2.3. Communication

Icon		Description	Value
		COM1	-
		Baud Rate	9600
		Data bits	8

		Stop bits	1
		Parity	None
		COM2	-
		Baud Rate	9600
		Data bits	8
		Stop bits	1
		Parity	None
		Ethernet	-
		DHCP	No
		IP Address	192.168.0.2
		Subnet mask	255.255.255.0
		Gateway	192.168.0.1
		Tcp	-
		Port	4001

9.2.4. Devices

Icon			Description	Value
			Computer	
			Port	None
			Address	1
			Continuous transmission	No
			Weighing Printout Template	-
			E2R System	-

			System is active	No
			Lock selecting products	No
			Printer	-
			Port	COM1
			Code page	1250
			Printouts	-
			Weighing printout template	See ch. 16.2.3
			Cumulative printout template	See ch. 16.2.3
			Cumulative printout template for cumulative data	See ch. 16.2.3
			Adjustment report printout template	See ch. 22.3
			Recipe report printout template	See ch. 27.7
			Density printout template	See ch. 28.4
			Product printout template	See ch. 16.2.3
			Operator printout template	See ch. 16.2.3
			Client printout template	See ch. 16.2.3
			Warehouse printout template	See ch. 16.2.3
			Package printout template	See ch. 16.2.3
			Barcode reader	-
			Port	None
			Prefix	01
			Suffix	0d
			Field selection	See ch. 16.3.3
			Test	See ch. 16.3.3

			Transponder card reader	-
			Port	None
			Additional display	-
			Port	None
			Template	See ch. 16.5.2

9.2.5. Display

Icon		Description	Value
		Text information	-
		Displaying template	See ch. 17.1.1
		Font	Courier
		Font size	Small
		Bold	Yes
		Actions	
		F1 Button	Choose product
		F2 Button	Choose client
		F3 Button	Set tare
		Screen button 1	Local parameters
		Screen button 2	Set MIN and MAX
		Screen button 3	Statistics C: Print
		Screen button 4	CCStatistics : Print
		Screen button 5	C Statistics : Zero

		Screen button 6	Choose package
		Screen button 7	Edit batch number
		Screen button 8	None
		Screen button 9	None
		Left proximity sensor	None
		Right proximity sensor	None
		Set Default	-
		Show all platforms	No
		Bargraph type	None

9.2.6. Inputs / Outputs

Icon		Description	Value
		Inputs	-
		Input 1	None
		Input 2	None
		Input 3	None
		Input 4	None
		Outputs	-
		Output 1	None
		Output 2	None
		Output 3	None
		Output 4	None

9.2.7. Authorizations

Icon		Description	Value
		Anonymous operator	Operator
		Date & Time	Administrator
		Printouts	Administrator
		Databases	
		Products	Administrator
		Clients	Administrator
		Formulation	Administrator
		Packages	Administrator
		Warehouses	Administrator
		Labels	Administrator
		Delete older data	Advanced Operator

9.2.8. Units

Icon		Description	Value
		Start unit	None
		Defined unit 1	-
		Multiplier	0
		Name	-
		Defined unit 1	-
		Multiplier	0
		Name	-

[g] [ct]		Acceleration of gravity	9.80665

9.2.9. Other

Icon	Description	Value
	Language	Polish
	Date & Time	-
	Beep	Yes
	Cursor	No
	Touch screen calibration	-

9.2.10. User Calibration

An option only for non-verified scale

Icon	Description	Value
	Setting of start mass	-
	Calibration	-
	Report printout	No
	Adjustment track record	-

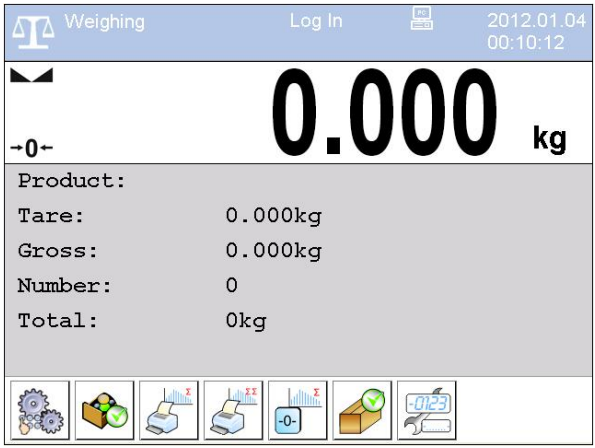
9.2.11. Info

Submenu **<** **Info>** is for viewing information:

- Scale factory number,
- Program version,
- Scale program version.

10. INDICATING WINDOW

Main view:

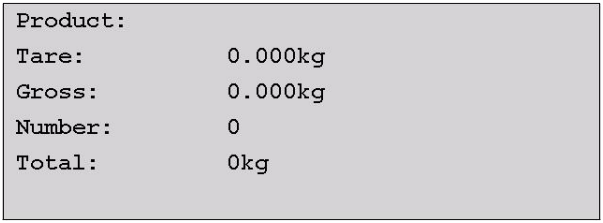


In the main application window one can see four separate parts:

- In the top part of the window there is a status bar where a work mode, logged-in user, time&date are displayed and active connection with a computer are displayed.

- Below the status bar you can see weighing window(s).:

- There is a workspace below this window:



Notice:
The workspace is freely programmable. The default template is described in ch. 17.1.1 of this manual.

- There are screen buttons below the workspace:

Notice:

1. *Users can define screen function buttons. See the procedure in ch. 17.2 of this manual;*
2. *The number of buttons to be defined depends on the selected operating mode i.e.:*
    - *In operating mode **<Weighing>** 9buttons are at ones disposal displayed subsequently from 1 to 9 starting from the left side,*
    - *In other working modes, part of the hot keys is permanently assigned due to realized functions. Depending on selected working mode, the user can use from 6 to 8 hot keys.*

11. LOGGING IN

In order to have full access to user parameters and databases, the user should log in as an **<Administrator>**.

11.1. Logging in procedure

- While in the main window press **<log in>** on the top of the screen and the window with operators attributed to **<Admin>** will appear,
- After entering **<Admin>** a screen keyboard runs with editing window for inscribing a password,
- Type password **„1111”** and confirm by pressing ,
- The program returns to the main window and in the title bar you will see **<Admin>** instead of **<log in>**.

11.2. Logging out procedure

- While in the main applilcation window press the name of a logged in operator in the top bar on the screen to open the database of operators,
- Press logging out button situated in the top bar of the operators' database window:

- The program returns to the main window and in the top bar the operators name is substituted by **<Log in>**.

11.3. Authorization access levels

Weighing software uses four access levels: administrator, advanced operator, operator, none. Every user with any attributed access level can perform weighings and select data from in databases to be used during weighing.

Access to user parameters, databases and working modes depending on the authorization access level attributed:

Operator type	Access level description
None	No access to user parameters. No weighing can be confirmed. Cannot enter the reference mass unit and estimate the reference mass unit by weighing in „Counting Pieces" and „Deviations", density determination and implementation of the recipe. No access to <Export the weighing database to a file> in menu <Databases>[2)].
Operator	Access to parameters in submenu: <Weighing>, <Display>[1)] (excluding the group <Actions>), <Others>[1)]. Can start and perform all weighing procedures. Access to <Export the weighing database to a file> in menu <Databases>[2)].
Advanced Operator	Access to parameters in submenus: <Weighing>, <Working modes>, <Communication>, <Devices>[1)], <Display>[1)], <Others>[1)]. Can start and perform all weighing procedures. Access to <Export the weighing database to a file> in menu <Databases>[2)].
Administrator	Access to all user parameters, functions and databases[2)]. Can start and perform all weighing procedures.

1. Authorization level for editing functions:

   - **<Printouts>** in submenu **„Devices / Printer”**,
   - **<Sample>** in submenu **„Devices / Additional display”**,
   - **<Displaying template>** in submenu **„Display / Text information”**,
   - **<Date and Time>** in submenu **<Others>**,

   It can be declared in submenu **<Authorizations>**, which is accessible only for users with the **<Administrator>** authorization level (see ch. 19 of this manual).

2. A user logged in as **<Administrator>** in submenu **<Authorizations>** (see ch. 19 of this manual) can change authorization levels for accessing different databases and functions **<Delete older data>**. The exception are database **<Weighings / Alibi>**, that have the status **„Read only”**.

12. NAVIGATING WITHIN THE MENU

Owing to the colour display with the touch panel navigating within the menu is simple and intuitive.

12.1. Keys

SETUP	Entering the main menu
	Menu list „up”
	Menu list „down”
	Scrolling „up-down”

Enter (OK)

Abort

Add a new item in a database

Disabling the formerly selected record e.g. logging out the operator

Searching a database according to a date

Searching a database according to a name

Searching a database according to a code

Printing on item from a database

Clearing an editing field

Screen keyboard on / off

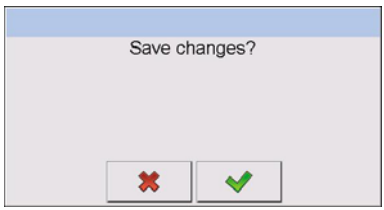
Reading a printout template from a *.lb file (active after connecting a pendrive)

Variables for a printout template

One level up

12.2. Return to weighing

The changes introduced are saved for good after they are confirmed. Press or several times until the following message box appears:



Press: – to confirm changes or – to abort changes. The program returns to weighing.

13. WEIGHING

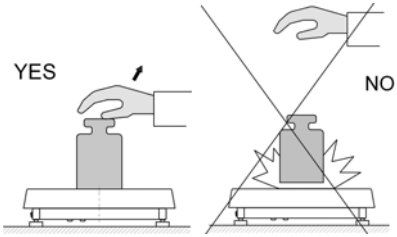
Put a load on the weight pan. When pictogram ◣◢ is displayed the indication is ready to read.

Notice:
A weighing can be saved after stabilising a measurement over zero (pictogram ◣◢).

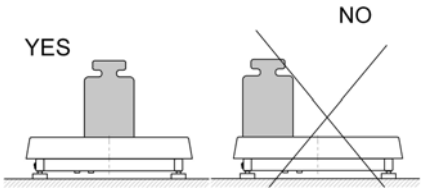
13.1. Conditions of operational use

In order to assure a long term operating period with appropriate measurements following principles should be adhered to:

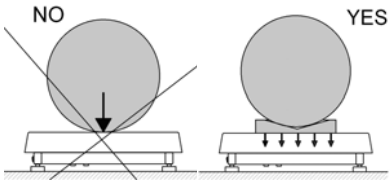
- Avoid applying mechanical shocks to the weight pan:



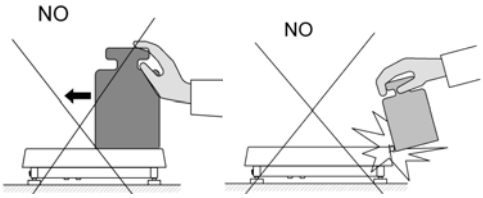
- Loads should be placed in the centre of the pan (eccentric errors are outlined in PN-EN 45501 chapter 3.5 and 3.6.2):



- Do not apply concentrated forces (all load in one point):



- Avoid side loads, particularly side strokes:



13.2. Zeroing

In order to zero the indication choose a platform on the touch panel and press →0←. After zeroing is performed the indication is equal zero and following symbols usually appear: →0← and ◣◢.

Zeroing is possible only when the indication is stable.

Notice:
Zeroing is possible only within ***±2%*** *of full range around zero. If the zeroed value is beyond the interval of* ***±2%, Err2*** *is displayed.*

13.3. Tarring

In order to tare the scale choose a platform on the touch panel if necessary, put a package on the pan and press →T←. You will see the indication equal zero and following symbols usually appear: ***Net*** and ◣◢.

After placing a load on the weight pan net mass will be shown. Tarring is possible within the whole range of the scale. After unloading the pan the display shows the tarred value with minus sign.

You can also inscribe tare values to the product database. Every product has a field “Tare”. In that case tare is automatically set to this value after selecting the product.

Notice:
*Tarring cannot be performer when a negative or zero value is being displayed. In such case **Err3** appears on the display.*

13.4. Inscribing tare

It is possible to inscribe a tare value.

Procedure:

- While in any work mode press F3, then the screen keyboard is displayed,
- Inscribe tare and press ✔,
- The program returns to weighing and the and the display shows the entered value with the **„–”** sign provided there was zero before on the display.

13.5. Weighing for dual range scales

Switching between the **I range** and the **II range** happens automatically (exceeding Max of the **I range**).

Weighings in the second range is signalled by a pictogram in the top left corner of the display →|2|← . Then weighings is done with the accuracy of the **II range** to the moment of returning to zero (autozero range →0←) where the scale switches back to the **I range**.

Switching between the **II range** and **I range** is automatic both in the switching point the autozero zone.

While in AUTOZERO – pictogram →0← appears. Then pictogram →|2|← is off and a scale returns to weighing in the **I range**.

13.6. Toggling between weight units

Operators can change the weight unit in two ways:

- Pressing the unit symbol on the screen,
- Pressing formerly defined button **<** kg lb **Change unit>**.

Possible selection:

- gram [g]
- kilogram [kg]
- carat [ct]
- pound [lb] *
- ounce [oz] *
- Newton [N] *

***) –** weighing unit inaccessible in a verified scale

Notice:

1. *The user can also declare the start unit and determine two custom weighing units (user defined) – see point 20 of this user manual;*
2. *The procedure of attributing functions to buttons is described in ch. 17.2 of this manual.*

14. SCALE PARAMETERS

Users can set the scale according to the ambient conditions (filtering level) or own needs (autozero) and set the LO threshold for minimum load that enables operation of some functions. These parameters are placed in **<** **Weighing>**.

In order to enter submenu **<** **Weighing>,** press SETUP and then: „ **Weighing”**.

Notice:
Weighing parameters are directly related to a specific weighing platform, so at the beginning the weighing platform should be selected for which we want to set parameters.

Inventory of scale parameters:

Median Filter

Filter

Autozero

LO Threshold

Last digit

14.1. Median filter

The median filter is intended for eliminating short-lasting mechanical shocks.

Procedure:

- Enter **<** **Weighing>** according to ch. 14 of the manual, select **<** **Median Filter>** and then set an appropriate value.

Accessible settings:

None - median filter is off
0.5, 1, 1.5, 2, 2.5 - filtering level to choose

14.2. Filter

This filter is intended to suppress continuous mechanical vibrations at the cost of stabilization time.

Procedure:

- Enter **<** **Weighing>** according to ch. 14 of the manual, select **<** **Filter>** and then set an appropriate value.

Accessible settings:

None, V.Fast, Fast, Average, Slow.

Notice:
The higher filtering level the longer stabilization time.

14.3. Autozero

The autozero function has been implemented in order to assure precise indications. This function controls and corrects **„0”** indication.

While the function is active it compares the results continuously with constant frequency. If two sequentional results differ less than the declared value of autozero range, so the scale will be automatically zeroed and the pictograms and → 0 ← will be displayed.

If AUTOZERO is disabled zero is not corrected automatically. However, in particular cases, this function can disrupt the measurement process e.g. slow pouring of liquid or powder on the weighing pan. In this case, it is advisable to disable the autozero function.

Procedure:

- Enter **<** **Weighing>** according to ch. 14 of the manual, select **<** **Autozero>** and then set an appropriate value.

Accessible settings:

NO	-	Autozero off
YES	-	Autozero on

14.4. Minimum weight for different functions (LO)

Parameter **<LO THRESHOLD>** is associated with automatic weighing. Next weighing will not be saved until the indication goes under the **THRESHOLD LO** (net).

Procedure:

- After entering **<** **Threshold Lo>** according to ch. 14 of this manual a keyboard is displayed,

- Inscribe LO and confirm by pressing .

14.5. Last digit

The last digit option **<** **Last digit>** is to switch off the last digit of measured mass indication – the measurement is carried out with decreased accuracy.

Procedure:

- Enter group of parameters **<** **Weighing>** in accordance with ch. 14 of this user manual, select parameter **<** **Last digit>** and set its desired value.

Accessible settings:

Always	-	Last digit always visible
Never	-	Last digit always switched off
When stable	-	Last digit visible only on stable indication of mass

15. COMMUNICATION

The scale can communicate with external devices via different ports:

- COM 1 (RS232),
- COM 2 (RS232),
- Ethernet,
- Tcp.

The communication can be configured in parameters' group **<** **Communication>**.

In order to enter **<** **Communication>**, press and then:

„ **Communication”**.

15.1. RS 232 settings

Procedure:

- Enter **<** **Communication>** according to ch.15 of the manual, select **<** **COM1>** or **<** **COM2>**, and then set an appropriate value.

For RS 232 following parameters are accessible:

- Baud Rate - 4800, 9600, 19200, 38400, 57600, 115200 bit/s
- Data bits - 5, 6, 7, 8
- Stop Bit - No, 1, 1.5, 2
- Parity - No – Odd – Even – Mark – Space

15.2. ETHERNET setting

Procedure:

- Enter **<** **Communication>** according to ch.15 of the manual, select **<** **Ethernet>** and then set an appropriate value.

Following settings are accessible for Ethernet:

- DHCP - Yes – No
- IP Address - 192.168.0.2
- Subnet Mask - 255.255.255.0
- Default gateway - 192.168.0.1

Notice:
The settings above are only for information purposes. Transmission parameters should be matched to the local client network.

- After making changes press , then a new message is displayed: **<Restart to apply the changes>**,

- Go back to weighing saving parameters and restart the device.

15.3. TCP protocol setting

TCP *(Transmission Control Protocol)* is a protocol for communication between two computers. It operates in mode client-server. Server waits for connection initiation on a specified port while client initiates connection to the server. Scale software allows setting the port for the **„Tcp”** protocol.

Procedure:

- Enter **<** **Communication>** parameter group as described in chapter 16 of the manual,
- Select: **„** **Tcp /** **Port”** then you will see window **<Port>** with the screen keyboard,
- Enter the required number and press .

16. DEVICES

16.1. Computer

The scale can cooperate with a computer. Active connection **scale-computer** is signalled by icon in the top bar of the main window. In submenu **<** **Computer>** some settings needs to be configured for cooperation with computers.

Enter submenu **<** **Computer>**, press SETUP and then: **„** **Devices /** **Computer”**.

16.1.1. Computer port

Procedure:

- Enter parameters' group **<** **Devices>** according to ch. 16 of this manual,
- Select **„** **Computer** / **Port”** and then set the appropriate option.

The scale can communicate with a computer via following ports:

- RS 232 (COM1),
- RS 232 (COM2),
- Tcp.

16.1.2. Computer address

Procedure:

- Enter **<** **Devices>** parameter group as described in chapter 16 of the manual,
- Choose **„** **Computer /** **Address”** then the window **<Address>** with the screen keyboard appears,
- Enter the required address and confirm it by pressing .

16.1.3. Continuous transmission

Users can enable continuous transmission from the scale to a computer. Setting parameter **<** **Continuous transmission>** starts subsequent sending data from **<** **Weighing Printout Template>** set in submenu: **„Setup /** **Devices /** **Computer /** **Weighing Printout Template”**.

Procedure:

- Enter parameters’ group **<** **Devices>** according to ch. 16 of this manual,
- Choose **„** **Computer /** **Continuous transmission”** and then set an appropriate value.

Accessible settings:

No - Continuous transmission off
Yes - Continuous transmission on

16.1.4. Weighing printout template

Users in parameter <**Weighing Printout Template>** can define variables included in the printout from the scale to a computer.

Procedure:

- Enter <**Devices>** parameter group as described in chapter 16 of the manual,
- Choose **„Computer** / **Weighing Printout Template”** then the editing field **<Weighing Printout Template>** with the screen keyboard appears,
- Modify the template if necessary and confirm the changes by pressing .

Notice:

There are additional buttons in the bottom line of the screen keyboard. They can be used while modifying a printout template.

Screen keyboard on/off

*Reading a printout template from a *.lb file (button active while connecting a USB pendrive)*

List of variables for printout templates (see the list in APPENDIX A of this manual)

Clear the editing field

16.1.5. Cooperation with „E2R System”

Scales can cooperate with computer software **„E2R System”** that is a modular system for complex production supervising by monitoring of weighings processes. In order to allow the cooperation with **„E2R System”** enable parameter <**E2R System>**.

Notice:

*The parameter <**E2R System>** can be activated by an authorized service or the manufacturer.*

Procedure:

- Enter **<** **Devices>** parameter group as described in chapter 16 of the manual,
- Choose **„** **Computer /** **E2R System /** **System is active”** and then set an appropriate value.

Accessible settings:

No	-	System is not active
Yes	-	System is active

- If during cooperation with **<** **E2R System> product selection lock** is required for operators, go to parameter **<** **Lock selecting products>** and set its value to **<Yes>**.

16.2. Printer

In **<** **Printer>** submenu users can:

- Setting communication with a printer,
- Setting code page of a printer,
- Setting templates of printouts.

To enter **<** **Printer>**, press

and then: **„** **Printer”**

16.2.1. Printer port

Procedure:

- Enter **<** **Devices>** parameter group as described in chapter 16 of the manual, choose **„** **Printer /** **Port”** and then select an appropriate option.

Printers can be attached to:

- RS 232 (COM1),
- RS 232 (COM2),
- USB,
- Tcp.

16.2.2. Printer code page

Procedure:

- Enter parameters **<** **Devices>** as described in chapter 16 of the manual,
- Choose **„** **Printer /** **Code Page”** then the screen keyboard will be displayed,
- Write the required code page and confirm by pressing .

  Notice:
  The default value is 1250 – code page for Middle-East Europe.

16.2.3. Templates for printouts

Enter **<** **Printouts>** to define printout templates.

Procedure:

- Enter parameter group **<** **Devices>** as described in chapter 16 of the manual, then choose **„** **Printer /** **Printouts”**,
- After editing a template a memo box with the default content and the screen keyboard,
- Modify the template according to your requirements and confirm it by pressing .

Notice:

There are additional buttons in the bottom line of the screen keyboard. They can be used while modifying a printout template.

Screen keyboard on/off

*Reading a printout template from a *.lb file (button active while connecting a USB pendrive)*

List of variables for printout templates (see the list in APPENDIX A of this manual)

Clear the editing field

Default printouts' settings:

Weighing Printout Template	{0}
Cumulative Printout Template	N={15} SUM={16}
Cumulative of Cumulative Printout Template	N2={20} SUM2={21}
Product Printout Template	{50} {51}
Operator Printout Template	{75} {76}
Client Printout Template	{85} {86}
Warehouse Printout Template	{130} {131}
Package Printout Template	{80} {81} {82}
Adjustment report printout template	See ch. 22.3
Density printout template	See ch. 28.4
Formulation report printout template	See ch. 27.7

16.3. Barcode scanner

The balance allows for cooperation with a barcode scanner. The scanner can be used for quick search of:

- Products,
- Clients,
- Packages,
- Warehouses,
- Recipes,
- Universal variables,
- Batch number.

Configuration of communication can be configured in:
“ **/** **Devices /** **Barcode reader”**.

Notice:

In submenu < ***Communication>** set the baud rate (default 9600b/sec). The detailed description of cooperation scale – barcode scanner can be found in **APPENDIX F** in this manual.*

16.3.1. Port for barcode scanner

Procedure:

- Enter **<** **Devices>** according to ch.16 of the manual, choose **„** **Barcode reader** / **Port”** and then set the appropriate value.

Barcode scanners can be connected to:

- RS 232 (COM1),
- RS 232 (COM2),

16.3.2. Prefix / Suffix

Users can edit a prefix **<** **Prefix>** or / and suffix **<** **Suffix>** in order to adjust the program to accept transmission frames from the scanner.

Notice:
A special protocol is required in order the code be received by RADWAG equipment. It is required to program an appropriate prefix and suffix. Prefix – one byte 01 hexadecimally, suffix one byte 0D hexadecimally. The detailed description of cooperation scale – barcode scanner can be found in ***APPENDIX F*** *in this manual.*

Procedure:

- Enter **<** **Barcode Scanner>** according to ch.16.3 of the manual,
- Chose parameter **<** **Prefix>** and then enter, using the screen keyboard, a required value (hexadecimal) and confirm it by pressing .
- Chose parameter **<** **Suffix>** and then enter, using the screen keyboard, a required value (hexadecimal) and confirm it by pressing .

16.3.3. Field selection

This option is connected with selecting data which the program will search after reading a barcode.

Procedure:

- Enter **<** **Devices>** according to ch.16 of the manual,
- Chose **„** **Barcode Scanner** / **Field selection”** and then the following list will be displayed:

Product
Contractor
Package
Source warehouse
Target warehouse
Recipe
Universal variable
Batch number

- Select an item and then you can edit following parameters:

	Filtering	Declaring an item, according to which searching is supposed to be performed (see the table below)
	Offset	Setting the first significant character in code from which the comparison with items is performed during searching. All preceding characters are skipped
	Code length	Setting the number of characters to be taken for the search procedure counting form Offset
	Start marker	Start marker declaration
	End marker	End marker declaration

Inventory of items to be selected for filtering:

Record	**Item for filtering**
Product	None, Name, Code, EAN Code
Client	None, Name, Code
Package	None, Name, Code
Source warehouse	None, Name, Code
Target warehouse	None, Name, Code
Recipe	None, Name, Code
Universal variable	None, Code
Batch number	No, Yes

16.3.4. Test

Operators, using parameter **<** **Test>,** can verify if a barcode connected to the scale works properly.

Procedure:

- Enter submenu **<** **Barcode Scanner>** according to ch. 16.3 of this manual,

- After entering parameter **<** **Test>** window **<Test>** is opened with an ASCII text box and HEX (hexadecimal) field,
- After scanning the code is entered to the ASCII field and HEX filed and at the bottom of the window a test result is displayed.

When:

- **<Prefix>** and **<Suffix>** declared in settings are the same as **<Prefix>** and **<Suffix>** in the read code then the test result is **<Positive>**,
- **<Prefix>** and **<Suffix>** declared in settings are not the same as **<Prefix>** and **<Suffix>** in the read code then the test result is **<Negative>**.

16.4. Transponder card reader

Selecting operator (logging in) can be done in two ways:

- Typing a password on a keyboard,
- Approaching a transponder card to the reader.
  The card needs to be registered first.

Notice:

In case of problems with reading transponder cards check the submenu **<** ***Communication>*** *and set appropriate baud rate (default 9600b/s).*

16.4.1. Com port for transponder card readers

Procedure:

- Enter group of parameters **<** **Devices>** according to ch. 16 of this manual, select **„** **Transponder cards reader** / **Port”** and set appropriate option.

The scale can communicate with the reader via following ports:

- RS 232 (COM1),
- RS 232 (COM2).

16.4.2. Procedure of attributing the card number to an operator

To use a transponder card to log on an operator the card needs to be ascribed to the operator in the database of operators.

Procedure:

- Connect the transponder card reader to the required communication port (RS 232 COM1 or RS 232 COM2),
- Choose a communication port for the reader (see ch. 16.4.1 in this manual),
- In submenu **<** **Communication>** set the baud rate to the same as in the reader (default 9600b/s),
- Enter the database of operators and edit the selected operator going to the field **<** **Card Number>**,
- After entering the field **<** **Card Number>** you will see the editing field **<Card Number>** with the screen keyboard,
- Having approached the card to the reader the program automatically displays in editing field **<Card Number>** the number of read card,
- Confirm the number by pressing and return to weighing.

16.5. Additional display

16.5.1. Additional display port

Procedure:

- Enter parameters group **<** **Devices>** according to ch. 16 of this manual, select **„** **Additional display** / **Port”** and then choose an appropriate option from the list.

Communication with additional displays can be performed via following ports:

- RS 232 (COM1),
- RS 232 (COM2),
- Tcp.

16.5.2. Communication protocol frame

WLY scale with following displays:

- WD display,
- WWG display.

To start cooperation of WLY scale with displays go to parameter **<Sample>** and define an appropriate communication protocol.

Procedure:

- Enter parameters' group **<Devices>** according to ch. 16 of this manual,
- Choose **„Additional display** / **Sample"** then the editing field **<Sample>** with the screen keyboard appears,
- Inscribe the required frame template using the screen keyboard or choose the item from the list after pressing .

  Specified templates for displays:

  {141} - Protocol template for WD displays
  {142} - Protocol template for WWG display

- Confirm the changes by pressing .

Notice:

In default settings parameter ***<Sample>*** *has ascribed* ***{141}*** *(WD display).*

17. DISPLAY

Users can adapt the main display and visible information to their needs. All parameters of the display can be found in the parameters' group **<Display>**.

Entering **<Display>** can be made in two ways:

- Direct pressing in the work area of the main display,
- Pressing SETUP and then: **„Display"**.

Inventory of parameters of the main display:

- Text information
- Button functions
- Show all platforms
- Bargraph Type

17.1. Text strings

In **< Text information>** users can set:

- Display template
- Screen font
- Font size
- Bold font

17.1.1. Display templates

The main application window comprises a work area including information that can be freely configured by a user.

Procedure:

- Enter **<** **Display>** according to ch. 17 of this manual,
- Choose: **„** **Text information /** **Displaying template”**, then an editing field with prompted value is displayed together with the screen keyboard,
- Modify the template if necessary and confirm the changes by pressing .

Notice:

There are additional buttons in the bottom line of the screen keyboard. They can be used while modifying a display template. :

Screen keyboard on/off

*Reading a display template from a *.lb file (button active while connecting a USB pendrive). *.lb files with the default templates of display in every language version are accessible on the CD attached to the device*

List of variables for display templates (see the list in APPENDIX A of this manual)

Clear the editing field

Default display template:

```
{40:Product:,-15}{50}
{40:Tare:,-15}{9}{11}
{40:Gross:,-15}{8}{11}
{40:Number:,-15}{15}
{40:Total:,-15}{16}{11}
```

17.1.2. Screen font

The font type can be changed in the display workspace.

Procedure:

- Enter **<** **Display>** according to ch. 17 of this manual,
- Choose: **„** **Text information /** **Font”** and set the required font type.

Accessible fonts:

- Arial,
- Courier.

17.1.3. Font size

Setting the font size for the workspace in the display.

Procedure:

- Enter **<** **Display>** according to ch. 17 of this manual,
- Choose: **„** **Text information /** **Font size** and set the required font size.

Accessible sizes:

- small,
- Average,
- Large.

17.1.4. Bold fonts

Setting bold fonts in an area of the workspace of the display.

Procedure:

- Enter **<** **Display>** according to ch. 17 of this manual,

- Choose: **„ Text information / Bold”** and choose a setting.

Accessible settings:

NO	-	Bold is off
YES	-	Bold is on

17.2. Function keys

In submenu **< Actions>** users can set actions following keys:

- function keys,
- screen keys,
- proximity sensors.

If a button has been attributed a function it has been activated at the same time. If a button or sensor has no ascribed a function in stays inactive.

Procedure:

- Enter **< Display>** according to ch. 17 of this manual,
- Choose **< Button functions>** and choose a required setting for a choosen button: F1, F2, F3, 9 screen buttons or proximity sensors.

Notice:
*The list of functions that can be attributed to keys or buttons is listed in **APPENDIX B** of this manual.*

17.3. Displaying platforms

If a scale is equipped with two platforms users can switch between platforms in three ways:

- By pressing the platform number on the scale screen,

- By pressing a formerly defined button **<** **Change platform>**.
- By activating in parameters all platforms that will be separately placed in the main window of the program. In that case platforms can be activated by pressing the area of this platform.

Notice:
The procedure of attributing functions to buttons is described in ch. 17.2 of this manual.

To activate all platforms press SETUP, choose:

„ Parameters / Display / Show all platforms”, and set appropriately.

NO	-	Displaying all platforms disabled
YES	-	Displaying all platforms enabled

17.4. Bargraph type

A bargraph is a typical visualisation procedure. It helps in quick weighing. It requires less concentration to read if a weighing is between minimum and maximum thresholds.

To see the bargraph on the screen enable it in parameters.

Procedure:

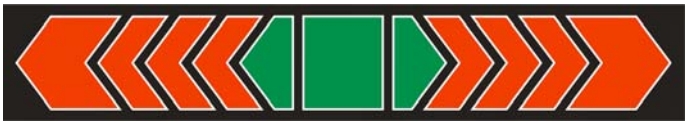
- Enter **<** **Display>** according to ch. 17 of this manual,
- Choose **<** **Bargraph type>** and set the required bargraph type.

Accessible bargraphs:

- Quick weighing,
- None (Bargraph is not displayed),
- Signalling checkweighing ranges,
- Linear.

17.4.1. Bargraph “Quick weighing”

- The bargraph consists of 8 red fields and three green fields.



- The green fields signal weighings between MIN and MAX threshold, where:

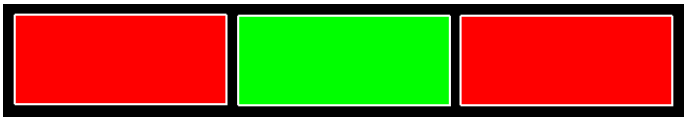
  MIN = the minimum threshold of acceptable weighing - LO
  MAX = the maximum threshold of acceptable weighing - HI

- If a measurement is over the MIN (to the value of 1/3 of MIN-MAX) the green field with a triangle on the left is visible. If the measurement is between 1/3 and 2/3 of MIN-MAX the rectangular green field is visible. If the measurement is between 2/3 of MIN-MAX and MAX a green field with a triangle on the right is visible.
- If the mass value is below the MIN threshold red fields with red arrows on the left are visible. The lower mass value the more red arrows are visible.
- If the mass value is over the MAX threshold red fields with red arrows on the right are visible. The higher mass value the more red arrows are visible.

Thresholds MIN and MAX are on the borders between red and green fields.

17.4.2. Bargraph “Signalling checkweighing ranges”

- This type of bargraph comprises one green and 2 red fields.

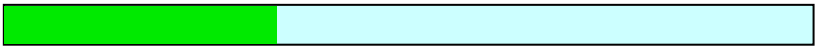


- **The left red field –** signals that the load on the pan is lower than the minimum weighing threshold (**Min** threshold);

- **The central green field –** signals that the load on the pan is within the set required interval for the weighed product (**OK** value between **Min** and **Max** thresholds);
- **The right red field –** signals that the load on the pan is greater than the maximum weighing threshold (**Max** threshold).

17.4.3. Bargraph „Linear”

The bar graph represents in a linear way the measuring range of a scale.



In addition, the bar graph can indicate weighing thresholds MIN, MAX, if they have been determined:

- Signalization of mass below the value set in MIN threshold:

- Signalization of mass within MIN and MAX values of thresholds:

- Signalization of mass exceeding the value set in MAX threshold:

18. INPUTS / OUTPUTS

WLY scales are equipped with 4 inputs / 4 outputs. To adjust software to the users needs configure inputs outputs in the submenu

in the submenu **<** **Inputs / Outputs>**:

- indicator inputs,
- indicator outputs.

In order to enter submenu **<Inputs / Outputs>**, press SETUP and then: **„Inputs / Outputs”**.

18.1. Configuration of inputs

Procedure:

- Enter **<Inputs / Outputs>** according to ch. 18 of this manual,
- Choose **<Inputs>** and enter the selected input you will see a list of functions to ascribe,
- Choose the required function from the list and return to weighing saving the changes according to ch. 12.2 of this manual.

Notice:
*The list of functions to ascribe to inputs is described in **APPENDIX B** of this manual. By default inputs have no ascribed functions **<None>**.*

18.2. Configuration of outputs

Ascribing a function to the output enables the output at the same time.
If an output has no ascribed function it is disabled.

Procedure:

- Enter **<Inputs / Outputs>** according to ch. 18 of this manual,
- Choose **<Outputs>** and enter the required output, then you will see the list of functions:

None	Output disabled
Stabile	Stable weighing result over LO threshold value
MIN stable	Stable weighing result below the MIN threshold
MIN non-stable	Non-stable weighing result below the MIN threshold
OK stable	Stable weighing result between MIN and MAX thresholds

OK non-stable	Non-stable weighing result between MIN and MAX thresholds
MAX stable	Stable weighing result over the MAX threshold
MAX non-stable	Non-stable weighing result over the MAX threshold
Confirmation of cycle completion *	Signal that confirms that a cycle of dosing has been completed (the defined amount)

***)** Not applicable to **„Standard"** software.

- Choose the required function from the list and return to weighing saving the changes according to ch. 12.2 of this manual.

Notice:
By default all outputs have no function attributed – setting ***<None>****.*

19. AUTHORIZATION

The submenu **<** **Authorization>** is accessible only while being logged in as the **Administrator**. In this group of parameters access levels can be outlined.

To enter submenu **<** **Authorization>**, press SETUP and then:

„ **Authorization"**.

19.1. Anonymous Operator

The program allows attributing the authorization access level to an operator who does not perform the log-in procedure (anonymous operator).

Procedure:

- Enter **<** **Authorization>** according to ch. 19 of this manual, choose **<** **Anonymous Operator>**, and then set the authorization access level.

Accessible authorization levels:

None, Operator, Advanced Operator, Administrator.

19.2. Date and time

Default settings allow a logged-in **Administrator** to change settings of date and time. Software however allows changing the access level to this option: **<** **Date and time>**.

Procedure:

- Enter parameters' group **<** **Authorization>** according to ch. 19 of the manual, choose **<** **Date and time>**, and then set the parameter.

Accessible authorization levels:

None, Operator, Advanced Operator, Administrator.

Notice:
Setting ***<None>*** *allows free access to settings of date and time (without the need of logging in).*

19.3. Printouts

Default settings of the scale allow a logged on **Administrator** to edit printout templates. Software allows changing the access level to option **<** **Printouts>**.

Procedure:

- Enter parameter group **<** **Authorization>** according to ch. 19 of this manual, choose **<** **Printouts>**, and set appropriately.

Access levels to printouts that can be set:

None, Operator, Advances Operator, Administrator.

Notice:
When you choose setting ***<None>*** *printout templates can be changed even without logging on.*

19.4. Databases

It is possible to set the access levels to the following databases:

- Database of Products,
- Database of Clients,
- Database of Formulas,
- Database of Packages,
- Database of Warehouses,
- Database of Labels.

Procedure:

- Enter parameters' group **<** **Authorization>** according to ch. 19 of the manual, choose **<** **Databases>**, and then set the parameter.

Accessible authorization levels:

None, Operator, Advanced Operator, Administrator.

Notice:
Setting ***<None>*** *allows free access to settings of date and time (without the need of logging in).*

19.5. Delete older data

Default settings allow a logged-in **Advanced Operator** delete older data from the **<** **Weighings / Alibi>** database. Software however allows changing the access level to this option: **<** **Delete older data>**.

Procedure:

- Enter parameters' group **<** **Authorization>** according to ch. 19 of the manual, choose: **„** **Databases /** **Delete older data"**, and then set the parameter.

Accessible authorization levels:

None, Operator, Advanced Operator, Administrator.

20. UNITS

Scale, in submenu **<** [ct] [lb] [g] **Units>** enables selecting:

- Declaring the start unit,
- Determining two user defined units (custom units),
- Changing the value of g-cor (the value of gravitational acceleration force).

To enter submenu **<** [ct] [lb] [g] **Units>**, press SETUP and then: **„** [ct] [lb] [g] **Units”**.

20.1. Start unit

Procedure:

- Enter submenu **<** [ct] [lb] [g] **Units>** in accordance with ch. 20 of this user manual,
- Select option **<** [ct] [g] **Start units>** and choose a start unit from displayed list of available weighing units.

Possible selection:

- none
- gram [g]
- kilogram [kg]
- carat [ct]
- pound [lb] *
- ounce [oz] *
- Newton [N] *

***) –** weighing unit inaccessible in a verified scale

- Exit to main menu with procedure of saving changes,
- On restarting the scale, the instrument operates with enabled start unit.

20.2. User defined units

Procedure:

- Enter submenu **< Units>** in accordance with ch. 20 of this user manual,
- Select option **< Defined unit 1>** and determine the values of the following parameters:

00285	**Multiplier**	Multiplier of scale's adjustment unit
N	**Name**	Unit name (Max 3 characters)

- Exit to main menu with procedure of saving changes,
- Press symbol of the new weighing unit visible in the weighing window, which activates list of available weighing units with new custom unit added at the end of the list.

Notice:

The procedure of defining the second custom unit ***< Defined unit 2>*** *is equal to the procedure described above.*

20.3. Acceleration of gravity

Parameter **< Acceleration of gravity>** eliminates the changes of gravitational acceleration force at different latitudes and altitudes in case of weighing process with application of "Newton" [N] weighing unit.

Procedure:

- Enter submenu **< Units>** in accordance with ch. 20 of this user manual,
- Select option **< Acceleration of gravity>** which opens an editing window **< Acceleration of gravity>** with a numeric keyboard,
- Insert the new value of acceleration of gravity for the place of use and accept it by pressing key,
- Exit to main menu with procedure of saving changes.

21. OTHER PARAMETERS

There is a group of parameters different from others which influence the operation of the scale. They are gathered in group **<Others>** e.g. language, beep etc. To enter **<Others>**, press SETUP and then: **„Others”**.

21.1. Languages

Procedure:

- Enter submenu **<Others>** according to ch. 21 of this manual, choose **<Language>** and set the parameter.

Accessible languages:

- Polish, English, German, French, Russian, Spanish, Czech, Hungarian, Estonian, Latvian, Italian, Greek, Turkish.

21.2. Setting date and time

Users can set date and time that are visible in the main window of the display. Entering the edition of date and time can be made in two ways:

- Pressing the field **„date and time”** in the top bar of the main screen,
- Pressing button SETUP and then: **„Others / Date and Time”**.

After entering the setting of date and time the screen keyboard appears. Set year, month, day, hour, minutes and confirm by pressing .

Notice:

*Parameter **<Date and Time>** is accessible in the scale menu depending on the authorization access level set in the related parameter.*

21.3. Sound signal

Procedure:

- Enter **Others>** according to ch. 21 of this manual, **<** **Beep>** and set accordingly.

Settings:

None	-	Sound for buttons and proximity sensors disabled
Buttons	-	Sound for buttons enabled
Sensors	-	Sound for proximity sensors enabled
All	-	Sound for buttons and proximity sensors enabled

21.4. Cursor

In order to start working with a computer mouse enable parameter **<** **Cursor>**.

Procedure:

- Enter **Others>** according to ch. 21 of this manual, choose parameter **<** C**ursor>** and set an option.

Settings:

No	-	Cursor disabled
Yes	-	Cursor enabled

21.5. Touch panel calibration

Touch panel calibration is required when inappropriate operation is recognized. E.g. the reaction in a different place than the touching point.

Procedure:

- Enter submenu **<** **Others>** according to ch. 21 of this manual,
- Select **<** **Touch Screen Calibration>** and then an editing field appears,

- Using a thin and soft pointer press (keep pressed for some time) in the point where the cross appears, after indicating the 4th place confirm changes by pressing **ENTER/PRINT**.

22. USER ADJUSTMENT

An option only for non-verified scale

Scales require recalculating internal divisions to more suitable ones (e.g. g, kg etc.). In order to do this they require an adjustment factor. It is adjusted during the adjustment procedure using a mass standard. Adjustment should be carried out if weighing a standard mass shows a different mass value.

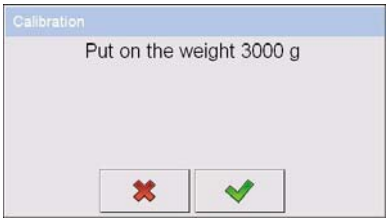
To enter **<User Adjustment>**, press SETUP key and then:

„User Adjustment”.

22.1. Adjusting procedure

- Enter submenu **<User Adjustment >** according to ch. 22 and select: **“Adjustment”**,
- After entering the parameter the following message box appears:

- Take the load off the pan of platform 1,
- Press button . The following message appears during adjusting start mass: **„Evaluation of starting mass”**,
- After the procedure has been completed the following message box appears:



- Place determined mass on pan of platform 1 and then select ,
- After the procedure of adjustment factor determination following command appears:

- Return to weighing, saving parameters.

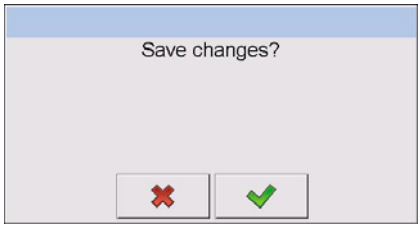
<Setting of start mass> parameter allows to adjust start mass of platform 1.

Notice:
The factory calibration process for platforms 2, 3, 4 is analogical to the one described above.

Return to weighing:

The changes introduced are saved for good after they are confirmed.

Press several times until the following message box appears:



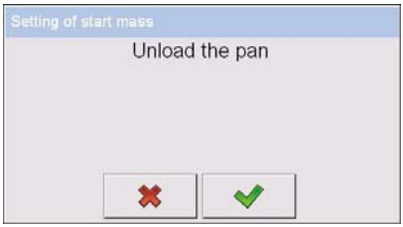
Press: – to confirm changes or – to abort changes. The program returns to weighing.

22.2. Start mass adjustment

It is possible to adjust only a start mass, it helps to correct the start zero when the span does not change.

Procedure:

- Enter submenu **<** **User Adjustment >** according to ch. 22 and select: **"** **Setting of start mass"**,
- After entering the parameter the following message box appears:



- Take the load off the pan of platform 1,
- Press button . The following message appears during adjusting start mass: **„Evaluation of starting mass"**,
- After the procedure has been completed the following message box appears:

- Return to weighing, saving parameters.

22.3. Report from adjustment process

Parameter **<** **Report printout>** enables activating the function of automatic printout of a report from adjustment process on a printer plugged to the scale.

Procedure:

- Enter submenu **<User Adjustment>** in accordance with ch. 22 of this user manual, select parameter **<Report printout>** and set its appropriate value.

Where:

No - Automatic report printout switched off
Yes - Automatic report printout switched on

Notice:

*Submenu: "**Devices / Printer / Printouts / Adjustment report Printout template"** enables optional modification of report template (see ch. 16.2.3 of this user manual).*

22.4. Adjustment track record

Each completed adjustment process is automatically saved in scale's database in submenu **<Adjustment track record>**.

In order to enter submenu **<Adjustment track record >**, press SETUP key, and: **„User Adjustment / Adjustment track record"**. Files comprising reports have names with time and date when the process was performed.

List of data for a carried out adjustment process:

	Date	Data of carried out operation
	Operator	Operator name
	Nominal Mass	Mass of adjustment weight
	Platform number	Platform number on which an operation was performed

The user can print data on a specific entry by pressing key, located in the upper bar of software's window.

23. SPECIAL FUNCTIONS OF WORKING MODES

WLY scales can operate in following work modes:

Weighing

Counting pieces

Deviations

Recipes

Weighing animals

Density

Work modes can be configured in **<** **Working Modes>**.

To enter submenu **<** **Working Modes>**, press SETUP and then:

„ **Working Modes”**.

The settings of specific working modes provide access to special functions adjusting operation of the instruments to client's individual needs. Part of the special functions has global effect, i.e. they are applicable to most of accessible working modes, as presented on below table:

	Weighing	Counting pieces	Deviations	Recipes	Weighing animals	Density
Save Mode	+	+	+	-	-	+
Down-weighing	+	+	+	-	-	-
Checkweighing	+	+	+	-	+	+
Tare mode	+	+	+	-	+	+
Labelling mode	+	+	+	-	+	-
Statistics	+	+	+	-	+	+

Other special functions are related directly to a specific working mode, and they are described in further part of this user manual.

Notice:

1. *First left screen button* *(local settings) in the main window of every working mode is ascribed to access settings of current mode.*
2. *The change in on mode results in the same change for other working modes working modes.*

23.1. Recording mode

Depending on setting parameter **<** **Save Mode>** users can send data from the scale to an external device.

Procedure:

- Enter parameters group **<** **Working modes>** according to ch. 23 of this manual,
- Enter the required mode and choose **<** **Save Mode>** then choose the required mode.

Accessible options:

- Manual every stable,
- Manual first stable,
- Automatic first stable,
- Automatic last stable.

23.2. Down-weighing

Software allows weighing in the “down-weighing” mode. It consist in putting the load on the pan and taking off/removing portions of it with concurrent saving weighings equal to the portions taken off the pan.

Procedure:

- Enter parameters group **<** **Working Modes>** according to ch. 23 of this manual,
- Enter the required working mode and choose **<** **Down-weighing>** and then set the required option.

Accessible options:

No	-	Traditional weighing
Yes	-	Down-weighing mode

23.3. Checkweighing

In case of enabling the checkweighing mode, printouts are performed only when a weighing is between **MIN** and **MAX** thresholds that have been defined before.

Procedure:

- Enter parameters group **<** **Working Modes>** according to ch. 23 of this manual,
- Enter the required working mode and choose **<** **Checkweighing>** then set the required option.

Options:

No	-	Every weighing is recorded
Yes	-	Only weighings between MIN, MAX are recorded.

23.4. Tare mode

This function enables users to set parameters for tarring.

Procedure:

- Enter parameters group **<** **Working Modes>** according to ch. 23 of this manual,
- Enter the required working mode and choose **<** **Tare mode>** and then set the required option.

Options:

Single	-	Basic tare mode. The set (choosen) tare value is overwritten after entering a new value

Current sum	-	Summing up tare values of product and package together with manually inscribed tare. After next setting of product or package tare the entered tare value is disabled
Total sum	-	Summing up all subsequently entered tare values
Autotare	-	Automatic tare mode together with mode **<Sum of all>**

23.5. Labelling mode

Labelling mode can be initiated together with every working mode. The labelling system is intended to print labels for marking weighed goods e.g. a packing process. The program can print standard labels for single products, cumulative labels for sticking to bulk containers and cumulative labels for cumulative labels for sticking to the large transport containers holding bulk containers.

In submenu **<** **Labelling mode>** there are accessible following special functions:

Number of labels

No. of cumulative labels

No. of CC labels

C label automatic triggering

CC label automatic triggering

23.5.1. Setting of the number of labels to print

In the parameter **<** **Number of labels>** user defines the amount of labels. They are printed on the printer connected to the weight.

Procedure:

- Enter parameters group **<** **Working Modes>** according to ch. 23 of this manual,

- Enter the required working mode and choose: **„** **Labelling mode /** **Number of labels”** then the editing field **<Number of labels>** with the screen keyboard is opened,
- Choose the required number of labels and confirm by pressing .

23.5.2. Setting of the number of cumulative labels to print

In the parameter **<** **No. of cumulative labels>** define the amount of sum labels. They are printed on connected printer.

Procedure:

- Enter parameters group **<** **Working Modes>** according to ch. 23 of this manual,
- Enter the required working mode and choose: **„** **Labelling mode /** **No. of cumulative labels”**, then the editing field **<No. of cumulative labels>** with the screen keyboard is opened,
- Enter the required number of cumulative labels and confirm by pressing .

23.5.3. Setting of the number of CC labels to print

In the parameter **<** **No. of CC labels>** define the amount of total sum labels to print. They are printed on connected printer.

Procedure:

- Enter parameters group **<** **Working Modes>** according to ch. 23 of this manual,
- Enter the required working mode and choose: **„** **Labelling mode /** **No. of CC labels”**, then the editing field **<No. of CC labels>** with the screen keyboard is opened,
- Enter the required number of cumulative labels and confirm by pressing .

23.5.4. Automatic triggering of cumulative labels

Users have access to the function of automatic triggering of printing cumulative labels after setting parameters **<** **Mode>** and **<** **Threshold>**.

Procedure:

- Enter **<** **Working modes>** parameter group as described in chapter 23 of the manual,
- Enter the required working mode and choose: **„** **Labelling mode /** **C label automatic triggering /** **Mode”** and then set the required option:

  None - Cumulative label printout is initiated by pressing or *,

  Mass - Cumulative label printout is initiated by exceeding the value set in parameter **<** **Threshold>**. The value is treated as the total from single weighings,

  Number - Cumulative label printout is initiated by exceeding the value set in parameter **<** **Threshold>**. The value is treated as the number of single weighings.

***)** Manual printing of cumulative labels can be done in two ways depending on the button used:

Printing followed by zeroing label counter or the total mass

Printing without zeroing label counter or the total mass

By default setting button is accessible in the bottom part of the display but activating the button can be done in submenu: **„** **Parameters /** **Display /** **Actions”** (see ch. 17.2 of the manual).

For automatic printout of cumulative labels counters and total mass variables are always zeroed.

- Confirm the changes by pressing and go to parameter **<Threshold>** then **<Threshold>** window appears with the screen keyboard,
- Set the appropriate value for automatic triggering cumulative labels:
  - If parameter **Mode>** is set to **<Mass>** then enter the required value of total mass to exceed in order to print the C label,
  - If parameter **Mode>** is set to **<Number>** use the screen keyboard to enter the required counter value as a threshold to trigger off printing C labels.
- Confirm the changes introduced by pressing .

23.5.5. Automatic triggering cumulative labels of cumulative labels

Users have access to the function of automatic triggering of printing cumulative labels of cumulative labels after setting parameters **Mode>** and **Threshold>**.

Procedure:

- Enter **Working modes>** parameter group as described in chapter 23 of the manual,
- Enter the required working mode and choose: **„** **Labelling mode /** **CC label automatic triggering /** **Mode”** and then set the required option:

  None - Cumulative label of cumulative labels printout is initiated by pressing or *,

  Mass - Cumulative label of cumulative labels printout is initiated by exceeding the value set in parameter **Threshold>**. The value is treated as the total from single weighings,

Number - Cumulative label of cumulative labels printout is initiated by exceeding the value set in parameter **<Threshold>**. The value is treated as the number of single weighings,

***)** Manual printing of cumulative labels can be done in two ways depending on the button used:

Printing followed by zeroing label counter or the total mass

Printing without zeroing label counter or the total mass

By default setting button is accessible in the bottom part of the display but activating the button can be done in submenu: „ **Parameters /** **Display /** **Actions”** (see ch. 17.2).

For automatic printout cumulative labels of cumulative (CC) labels counters and total mass variables are always zeroed.

- Confirm the changes by pressing and go to parameter **<Threshold>** then **<Threshold>** window appears with the screen keyboard,
- Set the appropriate value for automatic triggering CC labels:
  - If parameter **<** **Mode>** is set to **<Mass>** then enter the required value of total mass to exceed in order to print the CC label,
  - If parameter **<** **Mode>** is set to **<Number>** use the screen keyboard to enter the required counter value as a threshold to trigger off printing CC labels.
- Confirm the changes introduced by pressing .

23.6. Statistics

All statistics are continuously updated after each measurement is saved in the scale memory. Statistics can be calculated globally (does not depend on the selected product) or separately for every product from the product database. It can be set in parameters **<** **Statistics>**.

Procedure:

- Enter **Working modes>** parameter group as described in chapter 23 of the manual,
- Enter the required working mode and choose **Statistics>** and then set the required option.

Options:

Global	-	global statistics,
Product	-	statistics for every product.

Notice:

In case of operation with ***Statistics>*** *set to* ***<Product>*** *bare in mind that after restarting only statistics of the last weighed product are recovered.*

24. WORK MODE - WEIGHING

The **Weighing>** mode is the standard working mode allowing to perform weighings and saving them in the database **Weighings / Alibi>**.

24.1. Starting the working mode

The **Weighing>** mode is the standard working mode. If a user has changed the operating mode to another follow the actions below:

- While in the main window press the icon with mode name placed on the top bar on the left then submenu comprising all accessible working modes **<Working Modes>** opens,
- Choose **Weighing>**, program automatically returns to the main window displaying icon in the top bar.

24.2. Local setting of a working mode

Local setting of a working mode **<Weighing>** are accessible on pressing a hot key **<Local parameters>**:

	Save Mode	Detailed description in ch. 23.1 of the user manual
	Down-weighing	Detailed description in ch. 23.2 of the user manual
	Checkweighing	Detailed description in ch. 23.3 of the user manual
	Tare mode	Detailed description in ch. 23.4 of the user manual
	Labelling mode	Detailed description in ch. 23.5 of the user manual
	Statistics	Detailed description in ch. 23.6 of the user manual

25. WORKING MODES – COUNTING PIECES

Counting pieces is work mode allowing counting pieces on the basis of the standard unit mass of a single piece set on the scale or fetched from the database.

Notice:
If counting pieces is performed in an additional container it should be tarred.

25.1. Starting the working mode

Procedure:

- While in the main window press in the top bar, then you will see a submenu **<Working Modes>** comprising a list of modes,
- Choose **<Counting Pieces>**, program automatically returns to the main window displaying icon in the top bar,
- The weight unit is automatically changed to **„pcs”** and two screen buttons on the right side appear:

Enter piece mass

Estimate piece mass

25.2. Local settings of the working mode

Local settings of the working mode **<Counting Pieces>** are accessible on pressing a hot key **<Local parameters>**:

	Save Mode	Detailed description in ch. 23.1 of the user manual
	Down-weighing	Detailed description in ch. 23.2 of the user manual
	Checkweighing	Detailed description in ch. 23.3 of the user manual
	Tare mode	Detailed description in ch. 23.4 of the user manual
	Labelling mode	Detailed description in ch. 23.5 of the user manual
	Statistics	Detailed description in ch. 23.6 of the user manual
SMP	Automatic correction of reference mass	Detailed description in ch. 25.2.1 of the user manual
MIN	Minimum reference mass	Detailed description in ch. 25.2.2 of the user manual

25.2.1. Automatic correction of reference mass

It concerns the <Counting pieces> working mode

Working mode **<Counting Pieces>** comprises a special function **<SMP Automatic correction of reference mass>**, that can be used for correcting the unit mass **<SMP>**.

To enable the function in parameters you need to:

- Enter parameter group **<** **Working modes>** according to ch. 23 of this manual, choose: **„** **Counting Pieces /** **Automatic correction of reference mass”** and set appropriate option.

Options:

No	-	Automatic correction of reference mass disabled
Yes	-	Automatic correction of reference mass enabled

Function **<** **Automatic correction of reference mass>** in mode **<** **Counting Pieces>** is enabled at the moment of estimating the sample quantity and signalled by displaying **<PCS>** and **<SMP>** (single piece mass) on the top part of the display.

There are four criteria of working “Automatic correction of reference mass” function:

1. equilibrium should be reached,
2. quantity of pieces should be increased,
3. added quantity of pieces should not be greater than double number of pieces on the pan,
4. the new sample can be different from the old sample by ± 0.3 of pcs (absolute value),

If a user recognises that the sample quantity is adequate the unit mass (single piece mass) can be saved (see ch. 24.5 of this manual) and disable the function by pressing **ENTER/PRINT**.

Notice:
*While the function is active **ENTER/PRINT** changes its functionality. Pressing **ENTER/PRINT** does not result in printing and saving weighings.*

25.2.2. Minimum reference mass

It concerns the
< *Counting pieces**>** working mode*

Users before beginning the procedure of single piece mass evaluation can declare **“minimum reference mass”** i.e. minimum total weight of all pieces put on the scale pan expressed in reading divisions.

Procedure:

- Enter parameter group **<** **Working modes>** according to ch. 23 of this manual,
- Choose **„** **Counting pieces /** **Minimum reference mass”** and then set an appropriate value.

Accessible settings: 1 d, 2 d, 5 d, 10 d.

Notice:
While the procedure of evaluation the mass of single piece the the mass of all pieces put on the pan is lower than the value declared in parameter **„** ***Minimum reference mass”**, the following warning message will be displayed:* ***< Too low sample mass>**.*

25.3. Setting a reference unit by entering known piece mass

Procedure:

- Enter mode **<** **Counting Pieces>** according to ch. 25.1 of this manual,
- Press (enter piece mass), then an editing field is displayed **<Reference Unit>** with the screen keyboard,
- Enter a value and confirm it by pressing , which causes starting **<** **Counting Pieces>** with automatic setting the reference unit.

Notice:

1. *In case of entering a reference unit higher then the maximum weighing range of the main scale the program will display a message box:* ***<Value too high>**,*
2. *In case of entering the single piece mass lower than 0.1 d, the program will display a message box:* ***<Value to small>**.*

25.4. Setting a reference unit by weighing a sample

Procedure:

- Enter mode **<** **Counting Pieces>** according to ch. 25.1 of this manual,

- If pieces are weighed in a container it needs to be put on the pan and tarred,
- Press (estimate piece mass), then the editing field is displayed **<Reference Quantity>** together with the screen keyboard,
- Enter a value and confirm it by pressing , then the following message is displayed: **<Put pieces: xx>** (where **xx** – the value entered before),
- Put the declared quantity of pieces on the pan and when the result is stable (symbol ◣◢) confirm it by pressing .
- The program automatically calculates reference unit mass and causes starting **<** **Counting Pieces>**.

Notice:

- *The total mass of all pieces put on the weight pan cannot be greater than the weighing range;*
- *The total mass of all pieces put on the weight pan cannot be less than the value declared in parameter **„Minimum reference mass”** (see section 22.8). If the condition above is not fulfilled the scale displays the message **<Too low sample mass>**;*
- *The mass of one unit may not be less than **0.1 of reading division** of the scale. If this condition is not fulfilled the scale displays the message: **<Too low piece mass>**.*

25.5. Setting the reference mass by entering single piece mass directly to the database

After selecting a product from the product database a mass of single piece from the field **<Mass>** is used.

Procedure:

- While in **<** **Counting Pieces>** press ,
- Using or choose a product and confirm it by pressing .

Notice:
The selected product has to have declared unit mass (single piece mass).

25.6. Inscribing the unit mass to the database

The unit mass can be described a unit mass the following way:

a) Estimate the unit mass (see 25.2 and 25.3),

b) Enter the products database F1,

c) Keep the finger pressed on the required position then a context menu is displayed,

d) Choose option **<Ascribe standard>**, then the standard unit mass is attributed to the product in the field **<Mass>**.

Notice:
Attributing a standard to a selected product is also possible by programmable button. Setting programmable buttons is described in ch. 17.2 of this manual. The list of functions is described in ***APPENDIX B*** *of this manual.*

26. WORKING MODES – DEVIATIONS

The program allows to check weighings in deviations (in %) around an outlined standard mass. The standard mass can be outlined by weighing or entering it by a user.

26.1. Starting the operating mode

Procedure:

- While in the main window press in the top bar of the window then you will see a submenu **<Working Modes>** comprising a list of modes,
- Choose mode **<** **Deviations>**, the program will automatically returns to the main window displaying icon in the top bar,
- The weight unit is automatically changed to **„%”** and two screen buttons on the right side appear:

Enter reference mass

Estimate reference mass

26.2. Local settings of the working mode

Local settings of the working mode **<Deviations>** are accessible on pressing a hot key **<Local parameters>**:

	Save Mode	Detailed description in ch. 23.1 of the user manual
	Down-weighing	Detailed description in ch. 23.2 of the user manual
	Checkweighing	Detailed description in ch. 23.3 of the user manual
	Tare mode	Detailed description in ch. 23.4 of the user manual
	Labelling mode	Detailed description in ch. 23.5 of the user manual
	Statistics	Detailed description in ch. 23.6 of the user manual

26.3. Reference unit mass estimated by weighing

Procedure:

- Enter **<Deviations>** according to ch. 26.1 of this manual,
- If the standard is to be weighed in a container, the container needs to be put on the pan and tarred,
- Press (Estimate standard mass), then a message is displayed: **<Put standard>**,
- Put the load on the pan. After stabilization the result is taken as a standard (symbol ◣◢). Confirm it by pressing ,
- At the same time the weight unit is changed to (w %).

26.4. Reference unit mass inscribing into the memory

Procedure:

- Enter **<Deviations>** according to ch. 26.1 of this manual,

- Press (Give piece mass), then an editing field is displayed **<Give piece mass>** together with the screen keyboard,
- Enter a value and confirm by pressing ,
- At the same time the weight unit is changed to (w %).

27. WORKING MODES – FORMULATION

<Formulation> is a working mode designed for creating formulas of products on a scale series WLY. The working mode enables manual and automatic dosing on a single or simultaneously on many weighing platforms.

27.1. Starting the working mode

Procedure:

- While in main window of the software, press on-screen key, located in the upper bar of the window, which opens submenu **< Working Modes>** containing list of available working modes,
- Select working mode **<Formulation>**, the software automatically returns to displaying the main window, and the upper bar indicates the icon of selected working mode ,
- Simultaneously, two hot keys are activated on the right side of bottom tool bar:

Start formulation process

Stop formulation process

27.2. Formulation structure

All activities related to formulation process can be carried out from the level of scales WLY. Each formulation **<>** contains:

- Its name **<>**,
- formulation code **<>**,

- assigned weighing platforms **<** **>** defined on a terminal.

Each of the weighing platforms can have its specific formulation or dosing process (maximal number of processes for a single formulation is 2, as this is the maximal number of weighing platforms connectable to a single WLY scales).
Formulas database has the same searching mechanisms for a specific formulation (record in a database) as other terminal databases.

A formulation can be searched in a database by:

- formulation name **<** **>**
- formulation code **<** **>**

Processes carried out on different weighing platforms operated by the same terminal, can also be dependant on each other, e.g.: dosing on weighing platform 2 can be initiated only on completing dosing on weighing platform 1, which is confirmed by a signal from appropriate sensor.

27.3. Local setting of a working mode

Local settings for the working mode **<** **Formulation>** are accessible on pressing a hot key **<** **Local parameters>**:

		Ask for multiplier	Causes setting a question for formulation multiplier, i.e. the number which is used to multiply the values of mass of all formulation components.
		Ask for number of cycles	Causes setting a question on number of formulation cycles, i.e. number of repetitions of the same formulation.
		Confirm batching ingredients manually	Causes enabling manual confirmation by pressing “Enter/Print” key on terminal’s keyboard for each weighing process.
		No. of weighings for calculating the correction	Determines the number of recent measurements which are analyzed for calculating automatic correction in dosing
		Global	Global settings of dosing process
		Batching outputs	Enables setting the outputs for dosing (fine dosing in case of two-step dosing process)
		Bulk batching output	Enables setting outputs for bulk dosing in case of two-step dosing process

		Correction	Enables determining global value of correction for all weighing platforms
		Maximum correctional value	Enables determining the maximum value of correction, which can be automatically determined for all weighing platforms

<Global> settings are dedicated for the process of creating simple formulas, e.g.: dosing a single ingredient on all weighing platforms.

27.4. Description of functions and setting formulation (dosing) process

While creating formulation (dosing) process, the user has access to the following functions:

Icon	Short cut	Function	Description
	[DH]	Dose manually	Function recalling manual weighing of formulation ingredient (manual dosing)
		Mass	Mass of an ingredient to be dosed
		Min	MIN threshold for formulation ingredient
		Max	MAX threshold for formulation ingredient
		Product	Formulation ingredient uploaded from Products database
		Down-weighing	Enables switching on checkweighing mode (weighing on minus)
	[DA]	Automatic batching	Function enabling automatic weighing (automatic dosing). The function enables controlling outputs dedicated for dosing process.
		Mass	Mass of an ingredient to be dosed
		Mass for fast dosing	Mass of an ingredient for bulk dosing (in case of two-step dosing process)
		Product	Formulation ingredient uploaded from Products database
		Down-weighing	Enables switching on checkweighing mode (weighing on minus)

	[O]	Outputs	Function enabling setting the status of terminal's outputs for controlling peripheral devices plugged to those outputs. Accessible settings: None – output disabled; "0" – output with low status; "1" – output with high status.
	[TI]	Delay	Function determining interval between carrying out the following formulation steps. The function determines pending time for the following step counted in seconds.
		Time	Determination of pending time counted in seconds
		Description	Text description of an interval displayed on terminal's touch panel
	[Z]	Zero	Zeroing the weighing platform, equal to operation of the →0← function key on the terminal's front panel
	[T]	Tare	Tarring the weighing platform, equal to operation of the →T← function key on the terminal's front panel
	[ST]	Set Tare	Tare setting function, equal to operation of the <Set tare> function key on the terminal's front panel
	[CM]	Weight condition	Weight condition function determining time in which the following step of dosing process on a weighing platform should be carried out, e.g.: the following step is carried out if mass (net or gross) placed on the weighing platform is below the value set in threshold.
		Threshold	Value of mass set in threshold for the condition
		Mass	Kind of determined mass for threshold (net or gross)
		Weight condition	Weight condition – "**>=**" or "**<**"
	[CI]	Input condition	Conditional function, determining when the following step should be carried out, depending on status of terminal's input. Each input can take the following status: None – input disabled; „0" – input with low status; „1" – input with high status; „/" – input with increasing tendency (status change from low to high, e.g.: the moment of pressing a key); „\" – input with decreasing tendency (status change from high to low, e.g.: the moment of releasing a key)
	[EM]	Give mass	Function activating a so called: "mass in hand" – ingredient's mass of a formulation supplied in ready packages with precisely determined mass. The given mass is added to weighed ingredient's mass, e.g.: ingredient to be weighed = 21.8 kg, weighed amount 1.8 kg placed on the scale, and 20 kg inserted manually.

	[ET]	Give number of batching repetitions	Function determining quantity of batches of weighed ingredient that is added to a formulation. Mass of a single batch is determined in a product selected from the database (Products database – field Mass). Product's mass is multiplied by a specific value, and such determined mass is added to weighing process. The function is applicable for weighing products in batches.
	[F]	Set flags	Function determining a condition (characteristic point) in formulation or dosing process. The function enables conditional carrying out another step in formulation process. Setting the characteristic point (signal flags) in connection with condition flags enables mutual conditioning different processes on different weighing platforms.
	[CF]	Flags condition	Conditional function determining criteria for events, which have to occur in order to carry out the following step in formulation (dosing) process.

27.5. Creating a new formulation (dosing process)

Creating a new formulation is initiated by specifying its name and code, followed by determining processes on each of the weighing platforms.

Procedure:

- Press SETUP key and select option **<Databases>** from main menu → then select **<Formulation>**,
- In order to create a formulation, press **<Add>** key, and confirm creating a new record in formulation database,
- Specify formulation's name **<** **>** and code **<** **>** by pressing corresponding hot keys, and inserting a name and a code using an on-screen keyboard,
- Select weighing platform on which the formulation (dosing) process is created, e.g.: **< Platform 1>**.

- Arrange the steps of formula making process for weighing platform 1 by pressing **<** **Add>** key, and one of accessible functions designed for formulation process (see table in ch. 27.4 of this user manual). Each of the steps is added one by one.
- There is a possibility of modifying an already designed process – adding or deleting a single step in a process, e.g.: in order to add an element in a process, press and hold for 4 seconds an element before which a new step should be added. Drop-down menu with available options is displayed

  Edit
  Add
  Delete
  Cancel

- Press **"Add"** and define new element of the process.

27.6. Instances of formulation and dosing processes

27.6.1. Instance 1 – Manual formula making process of 4 ingredients on 2 weighing platforms

Description:

A formulation contains 4 ingredients, which are weighed on two weighing platforms:

- Weighing Platform 1: ingredients: Flour and Sugar
- Weighing Platform 2: ingredients: Seasoning and Water

Formulation process includes a condition, according to which before adding an ingredient "Water", all other ingredients have to be dosed. The condition is marked with signal flags, which determine formula making process between the weighing platforms, in a way which orders dosing Water ingredient as the last one. The whole process is described below in tables, separately for each weighing platform.

Formulation name: Instance 1
Formulation code: 1111

Formula making process controlled from the terminal:

Platform 1:

Icon	Step	Value	Description
	1. [TI] Delay	[5s] Place empty container	Pending for loading an empty container for the first product
	2. [CI] Input condition	Input 1 – „/”	Input 1 has to take increasing tendency – press function key confirming loading a container
	3. [T] Tare	Tare	Tarring the weighing platform no. 1
	4. [DH] Dose manually	1 kg [Flour]	Manual weighing product “Flour” to obtain 1 kg mass
	5. [TI] Delay	[5s] Unload container with product	Pending for unloading the container with weighed product from the weighing platform
	6. [CI] Input condition	Input 4 – „/”	Input 4 has to take increasing tendency – press function key confirming unloading a container from the weighing platform
	7. [Z] Zero	Zero	Zeroing the weighing platform no. 1
	8. [TI] Delay	[5s] Place empty container	Pending for loading an empty container for the second product
	9. [CI] Input condition	Input 1 – „/”	Input 1 has to take increasing tendency – press function key confirming loading a container
	10. [T] Tare	Tare	Tarring the weighing platform no. 1
	11. [DH] Dose manually	0,2 kg [Sugar]	Manual weighing product “Sugar” to obtain 0,2 kg mass
	12. [TI] Delay	[5s] Unload container with product	Pending for unloading the container with weighed product from the weighing platform
	13. [CI] Input condition	Input 4 – „/”	Input 4 has to take increasing tendency – press function key confirming unloading a container from the weighing platform
	14. [Z] Zero	Zero	Zeroing the weighing platform no. 1
	15. [F] Set flags	Set signal flag 1	Setting the characteristic point of the process, which is a condition for carrying out part of the process on the second weighing platform
	16. [O] Outputs	Output 1 – „1”	Input 1 takes the high status (“1”) – signal confirming carrying out the formula making process on the weighing platform no. 1 is lit up

Platform 2:

Icon	Step	Value	Description
	1. [TI] Delay	[5s] Place empty container	Pending for loading an empty container for the third product (the first product on the 2 weighing platform)
	2. [CI] Input condition	Input 9 – „/”	Input 9 has to take increasing tendency – press function key confirming loading a container
	3. [T] Tare	Tare	Tarring the weighing platform no. 2
	4. [DH] Dose manually	0,2 kg [Seasoning]	Manual weighing product “Seasoning” to obtain 0,2 kg mass
	5. [TI] Delay	[5s] Unload container with product	Pending for unloading the container with weighed product from the weighing platform
	6. [CI] Input condition	Input 12 – „/”	Input 12 has to take increasing tendency – press function key confirming unloading a container from the weighing platform
	7. [Z] Zero	Zero	Zeroing the weighing platform no. 2
	8. [CF] Flags condition	Signal flag 1 – „1”	Checking condition, whether signal flag 1 is set to value “1” – i.e. checking whether desired part of the process has been already realized on the weighing platform no. 1. If Yes, then formula making process on the second weighing platform shall continue.
	9. [O] Outputs	Output 1 – „0”, Output 12 – „1”	Output 1 is set to low status – the signal for completing formula making process on the weighing platform no. 1 is switched off; output 12 takes the high status – the main water valve is opened, for manual dosing of water ingredient.
	10. [DH] Dose manually	2 kg [Water]	Manual weighing product “Water” to obtain 2kg mass
	11. [O] Outputs	Output 12 – „0”	Output 12 is set to low status – the main water valve is closed
	12. [TI] Delay	[5s] Unload container with product	Pending for unloading the container with weighed product from the weighing platform
	13. [CI] Input condition	Input 12 – „/”	Input 12 can take increasing tendency – press function key confirming unloading a container from the weighing platform
	14. [O] Outputs	Output 9 – „1”	Output 9 is set to high status („1”) – signal confirming carrying out the formula making process on the weighing platform no. 2 is lit up
	15. [TI] Delay	[5s] Formulation completed	Displaying a text message on the terminal confirming completion of formula making process.

Completing formula making process (dosing process) causes switching off all outputs of the terminal.

27.6.2. Instance 2 – Automatic dosing of 2 ingredients on 2 weighing platforms

Description:

A formulation contains 2 ingredients, which are weighed on two weighing platforms:

- Weighing Platform 1: ingredient Flour
- Weighing Platform 2: ingredient Water

The dosing process is carried out automatically, and includes a condition, that the dosing sequence is strictly determined – dosing of "Water" ingredient can be initiated only on completing the dosing process of ingredient "Flour". The condition is marked with signal flags, which determine formula making process between the weighing platforms, in a way which orders dosing Water ingredient as the second one. The whole process is described below in tables, separately for each weighing platform.

Formulation name: Instance 2
Formulation code: 2222

Formula making process controlled from the terminal:

Platform 1

Icon	Step	Value	Description
	1. [CM] Weight condition	Gross<0.1 kg	Condition checking, unless the weighing platform is loaded with a mass exceeding 100 g
	2. [Z] Zero	Zero	Zeroing the weighing platform no. 1
	3. [TI] Delay	[5s] Open valve Flour	Pending for opening main valve of the container with "Flour"
	4. [DA] Automatic batching	1,2 kg [Flour]	Automatic dosing of product „Flour" to obtain 1 kg mass in bulk dosing mode (bulk dosing and fine dosing valves are opened – Outputs 1 and 2), and 0,2 kg mass is dosed using fine dosing valve only –fine dosing valve is opened on Output 1 (for two-step dosing process)

	5. [TI] Delay	[3s] Close valve „Flour ”	Pending for closing the main valve of the container “Flour”
	6. [O] Outputs	Output 11 – „1”	Output 11 takes high status („1”) – signal confirming carrying out the formula making process on the weighing platform no. 1 is lit up
	7. [F] Set flags	Signal flag 1 – „1”	Setting the characteristic point of the process, which is a condition for carrying out part of the process on the second weighing platform

Dosing on the first weighing platform is carried out in two-steps, as for ingredient „Flour” the outputs are set for two-step dosing – see Products database.

Platform 2

Icon	Step	Value	Description
	1. [CF] Flags condition	Signal flag 1 – „1”	Checking condition, whether signal flag 1 is set to value “1” – i.e. checking whether desired part of the process has been already realized on the weighing platform no. 1. If Yes, then formula making process on the weighing platform no. 2 shall start.
	2. [CM] Weight condition	Gross<0.1 kg	Condition checking, unless the weighing platform is loaded with a mass exceeding 100 g
	3. [Z] Zero	Zero	Zeroing the weighing platform no. 2
	4. [TI] Delay	[5s] Open valve Water	Pending for opening main valve of the container with “Water”
	5. [DA] Automatic batching	2,2 kg [Water]	Automatic dosing of ingredient “Water” to obtain 2,2 kg mass in single-step dosing mode – Output 6 controls the dosing valve
	6. [TI] Delay	[5s] Close valve Water	Pending for closing the main valve of the container “Water”
	7. [O] Outputs	Output 12 – „1”	Output 12 takes high status (“1”) – signal confirming carrying out the formula making process on the weighing platform no. 2 is lit up
	8. [TI] Delay	[5s] Dosing process completed	Displaying a text message on the terminal confirming completion of dosing process.

Additionally, in automatic dosing process, additional setting of dosing outputs for dosed ingredients have to be made – see Products database settings.

27.6.3. Instance 3 – Mixed formula making process

Description:

A formulation contains 4 ingredients, which are weighed on two weighing platforms:

- Weighing Platform 1: ingredients Flour, Sugar and Seasoning,
- Weighing Platform 2: ingredients: Water

Formula making process is carried out manually and automatically, and it includes a condition that the dosing sequence is strictly determined – dosing of "Water" ingredient can be initiated only on completing the dosing process of ingredient "Flour" and "Sugar". Ingredient "Seasoning" will be added as the last one to the formulation. The condition is marked with signal flags, which determine formula making process between the weighing platforms, in a way which orders dosing "Water" ingredient is dosed in an appropriate time. The whole process is described below in tables, separately for each weighing platform.

Formulation name: Instance 3
Formulation code: 3333

<u>Formula making process controlled from the terminal:</u>

Platform 1:

Icon	Step	Value	Description
	1. [TI] Delay	[5s] Place container Flour on the weighing platform	Pending for loading container "Flour" on the weighing platform no. 1
	2. [CI] Input condition	Input 1 – „/"	Input 1 has to take increasing tendency – press function key confirming loading a container
	3. [T] Tare	Tare	Tarring the weighing platform no. 1
	4. [DH] Dose manually	1 kg [Flour]	Manual weighing product Flour to obtain 1 kg mass
	5. [TI] Delay	[7s] Unload container with product	Pending for unloading the container with "Flour"
	6. [CI] Input condition	Input 4 – „/"	Input 4 has to take increasing tendency – press function key confirming unloading a container from the weighing platform
	7. [O] Outputs	Output 1 – „1"	Signal on completing dosing ingredient "Flour"

	8. [Z] Zero	Zero	Zeroing the weighing platform no. 1
	9. [TI] Delay	[5s] Place container Sugar on the weighing platform	Pending for loading container “Sugar” on the weighing platform no. 1
	10. [CI] Input condition	Input 1 – „/”	Confirm loading of container “Sugar”
	11. [T] Tare	Tare	Tarring the weighing platform no. 1
	12. [DH] Dose manually	0,4 kg [Sugar]	Manual weighing product Sugar to obtain 0,4 kg mass
	13. [TI] Delay	[5s] Unload container with product	Pending for unloading the container with “Sugar”
	14. [CI] Input condition	Input 4 – „/”	Input 4 has to take increasing tendency – press function key confirming unloading a container from the weighing platform
	15. [O] Outputs	Output 2 – „1”	Signal on completing dosing ingredient “Sugar”
	16. [Z] Zero	Zero	Zeroing the weighing platform no. 1
	17. [CI] Input condition	Input 5 – „1”	Confirm pouring ingredients to a mixer
	18. [F] Set flags	Signal flag 1 – „1”	Setting the characteristic point of the process, which is a condition for carrying out part of the process on the weighing platform no. 2
	19. [O] Outputs	Output 5 – „1”	Lighting up a signalling device confirming pouring the ingredients to the mixer
	20. [CF] Flags condition	Signal flag 1 – „1” Signal flag 2 – „1”	Pending for automatic dosing of water on the weighing platform no. 2
	21. [TI] Delay	[5s] Place container Seasoning on the weighing platform	Pending for loading container “Seasoning” on the weighing platform no. 1
	22. [CI] Input condition	Input 1 – „/”	Confirm loading of container “Seasoning”
	23. [T] Tare	Tare	Tarring the weighing platform no. 1
	24. [DH] Dose manually	0,25 kg [Seasoning]	Manual weighing product Seasoning to obtain 0,25 kg mass
	25. [TI] Delay	[5s] Unload container with product	Pending for unloading the container with “Seasoning”
	26. [CI] Input condition	Input 4 – „/”	Input 4 has to take increasing tendency – press function key confirming unloading a container from the weighing platform
	27. [O] Outputs	Output 3 – „1”	Signal on completing dosing ingredient “Seasoning”
	28. [TI] Delay	[10s] Dosing completed	Displaying a text message on the terminal confirming completion of dosing process

Platform 2:

Icon	Step	Value	Description
	1. [CF] Flags condition	Signal flag 1 – „1”	Checking condition, whether signal flag 1 is set to value “1” – i.e. checking whether desired part of the process has been already realized on the weighing platform no. 1. If Yes, then dosing process on the weighing platform no. 2 shall start.
	2. [T] Tare	Tare	Tarring the weighing platform no. 2
	3. [TI] Delay	[5s] Open valve Water	Pending for opening main valve of the container with “Water”
	4. [DA] Automatic batching	2 kg [Water]	Automatic dosing of ingredient “Water” to obtain 2 kg mass in single-step dosing mode – Output 6 controls the dosing valve (set for Water in Products database)
	6. [TI] Delay	[5s] Close valve Water	Pending for closing the main valve of the container “Water”
	7. [O] Outputs	Output 12 – „1”	Output 12 has high status (“1”) – signal confirming carrying out the dosing process on the weighing platform no. 2 is lit up
	8. [F] Set flags	Signal flag 1 – „1” Signal flag 2 – „1”	Setting the characteristic point of the process, which is a condition for carrying out part of the process on the weighing platform no. 1
	8. [TI] Delay	[10s] Dosing completed	Displaying a text message on the terminal confirming completion of dosing process

An instance of mixed dosing (manual and automatic) has been extended by signalling its corresponding phases to present the possibilities of the working mode Formulation.

27.7. Reporting from completed formula making processes

On completing each formula making process, the terminal automatically generates a report on that process.

Notice:

Submenu: “ ***Devices /*** ***Printer /*** ***Printouts /*** ***Formulation report printout template”*** *enables optional modifying of the report template (see ch. 16.2.3 of this user manual).*

Default form of the report from formulation template:

```
------------------------------------------
Recipe
------------------------------------------
{40:Start date:,-25}{180}
{40:End date:,-25}{181}
{40:Name:,-25}{175}
{40:Code:,-25}{176}
{40:Status:,-25}{182}
{40:Measurements:,-25}
------------------------------------------
{185:(50,-20)  (7)(11)
(40:Nominal Mass:,-25)(186)(11)
(40:Difference:,-25)(187)(11)
------------------------------------------
}{40:Mass:,-25}{184}{11}
------------------------------------------
```

The report from each completed formula making process is simultaneously saved in the database of **<Reports From Formulas>**, where the files are named by their date and hour of process execution and formulation status. List of data for the formula making process – see ch. 30.7.6 of this user manual.

28. WORKING MODES – DENSITY

Working mode **<Density>** enables determining density of solids, liquids and materials of high viscosity. The density is determined on basis of Archimedes principle, according to which any floating object displaces its own weight of fluid. The density mode also enables utilizing a pycnometer for determining density of liquids.

28.1. Starting the working mode

Procedure:

- While in main window of the software, press on-screen key, located in the upper bar of the window, which opens submenu **<Working Modes>** containing list of available working modes,
- Select working mode **<Density>**, the software automatically returns to displaying the main window, and the upper bar indicates the icon of selected working mode,

- Simultaneously, the workspace of the display indicates a message: **<Start estimating density>**.

28.2. Local setting of a working mode

Local settings for the working mode **<Density>** are accessible on pressing a hot key **<Local parameters>**:

	Standard liquid	Function dedicated for determining the standard liquid. There are three options: water, alcohol and other. If option “other” is selected, then its density should be specified. In case of the other two types of liquids, their density values are implemented in the software
	Temperature	Parameter of the standard liquid inserted by the scale user. Declared temperature of the standard liquid automatically determines its density based on a table of liquid densities. In case of the liquid type “Other”, the temperature parameter is not applicable, the density value is inserted manually
	Standard liquid density	Parameter designed for manual determining the density of standard liquid in [g/cm^3]
	Sinker volume	Parameter implemented for manual determining the volume of a sinker expressed [cm^3]
	Ask about sample number	Function ordering inserting number of a sample before initiating the test procedure
	Pycnometer mass	Parameter designed for manual determining mass of a pycnometer expressed in [g]. If inserted value is equal to „0” then on test procedure start, the pycnometer mass shall be measured.
	Pycnometer density	Parameter intended for manual determining volume of the pycnometer expressed in [cm^3]
	Unit	Weighing unit set to read the measurement result. This weighing unit is used for presenting measurement result, data in reports, databases and summaries.
	Save mode	Detailed description in ch. 23.1 of the user manual
	Checkweighing	Detailed description in ch. 23.3 of the user manual
	Tare mode	Detailed description in ch. 23.4 of the user manual
	Statistics	Detailed description in ch. 23.6 of the user manual

28.3. Carrying out density determination procedure

Working mode **<** **Density>** enables determining density in 4 different methods, depending on material which density should be measured.

Methods of density determination:

- Liquid
- Solids
- Pycnometer
- Porous material

Each of the methods is described separately in the subchapters of this user manual.

28.3.1. Determining density of liquids

Density of liquid is determined by measuring mass of a sinker with determined volume. First, the sinker has to be weighed in the air, and then in liquid of which the density should be measured.

The difference between the two measurements is displacement weight, which is used by scale software to calculate the density of tested liquid. Before starting the measurement, the sinker's volume should be inserted to scale's memory. The sinker's volume is given on its hook.

Process course:

- Press **<** **Local parameters>** key to enter the setting of local parameters in density mode.
- Press **<** **Sinker volume>** in order to insert the volume of the sinker (given in [cm^3]) which is immersed in the tested liquid.
- On specifying the parameters exit to main menu of the density mode by pressing key and saving inserted changes.
- In order to start density determination of liquid, press **<** **Determine liquid density>** key, using a pre-defined hot keys on terminal's display.

Caution:

If in the local parameters, < ***Ask about sample number>*** *function is enabled, then on initiating the process, the system asks for inserting the number of tested sample. The inserted sample number is linked to the process data and saved in the database.*

- The first phase of the density determination of liquid is measurement of sinker's mass in the air. Place the sinker on the scale's weighing platform. On obtaining stable measurement result, accept it by pressing key.
- Next, place on scale's weighing platform tested liquid with immersed sinker. On obtaining stable measurement result, carry out the measuring process, and accept it by pressing key.
- On carrying out the second measurement, the scale determines density of tested liquid and indicates the result on terminal's display. If the user needs a report from the density determination process, it can be printed on a plugged printer by pressing key. The density determination process is then completed.
- A report from density determination of liquid is saved in **< Density>** database. The report is named by process date.

28.3.2. Determining density of solids

Density of solids is determined by weighing a solid object in two different medium: in the air and in auxiliary liquid with determined density. The difference between the two measurements is displacement weight, which is used by scale software to calculate the density of tested solid.

Before starting the measurement select **< Local parameters>** menu and choose **< Standard liquid>** to be utilized in the density determination process. Also determine the temperature of the auxiliary liquid. Declaring the temperature of the auxiliary liquid enables matching its density to a table of liquid densities.

In case of selecting liquid type "Other", its density value should be specified in parameter **< Standard liquid density>**. Here, the **< Temperature>** parameter is specified only for information purpose of the report.

Process course:

- Press **<Local parameters>** key to enter the setting of local parameters in density mode.
- Press **<Standard liquid>** key to select the auxiliary liquid used for the density determination procedure. If the auxiliary liquid is other than “Water” or “Alcohol”, then select “Other” from the available list.
- Press **< Temperature>** key and specify the temperature of the auxiliary liquid [°C]. Accept inserted value by pressing key.
- If „Other” liquid has been selected, then press **<Standard liquid density>** and insert the density value of the auxiliary liquid expressed in **[g/cm^3]** for the specified temperature of the measurement.
- On specifying the parameters exit to main menu of the density mode by pressing key and saving inserted changes.
- In order to start density determination of a solid, press **<Determine solid density>** key, using a pre-defined hot keys on terminal’s display.

Caution:

*If in the local parameters, <00285 **Ask about sample number>** function is enabled, then on initiating the process, the system asks for inserting the number of tested sample. The inserted sample number is linked to the process data and saved in the database.*

- The first phase of the density determination of solid is measurement of the solid object in the air. Place the object on the scale’s weighing platform. On obtaining stable measurement result, accept it by pressing key,
- Next, in the auxiliary liquid place scale’s weighing platform with immersed tested solid object. On obtaining stable measurement result, carry out the measuring process, and accept it by pressing key,

- On carrying out the second measurement, the scale determines density of tested solid and indicates the result on terminal's display. If the user needs a report from the density determination process, it can be printed on a plugged printer by pressing key. The density determination process is then completed.
- A report from density determination of solids is saved in **<Density>** database. The report is named by process date.

28.3.3. Determining density of pycnometer

Pycnometer- it is a glass vessel which enables precise measurement of liquid mass at a precisely determined volume. A measurement method applying a pycnometer is one of the simplest means of determining density of liquids (densimetric method).

The key component of a pycnometer is a ground-in stopper with dumped capillary tube, which allows easy observation of the level of liquid contained in the vessel. Before the measurement process, the pycnometer is intentionally overfilled with tested liquid, and then it is closed tightly with a stopper and thermally stabilized.

The excess of liquid pouring through the capillary tube is removed with an absorbent paper. Then, the vessel is immediately placed on a scale, and its mass is determined as quickly as possible. During the mass measurement, due to contraction of the volume of liquid its level usually noticeably decreases in the capillary tube, but this does not matter if at the time of placing instrument on the scale, it was completely filled and had correct temperature. Small diameter of the capillary tube prevents evaporation of the liquid from the vessel, and therefore it does not affect the measurement result.

Before starting the density determination using a pycnometer, data on its volume and mass should be inserted to scale's memory. If pycnometer's mass is not specified in the local parameters, than the process starts with determining mass of an empty pycnometer.

Process course:

- Press **<Local parameters>** key to enter the setting of local parameters in density mode.

- Press **<** **Pycnometer mass>** key to insert the mass of a pycnometer used for determining density of tested liquid. Pycnometer's mass is expressed in grams [g]. Accept inserted value by pressing key.
- Press **<** **Pycnometer volume>** to specify the volume of the pycnometer used for determining density of tested liquid. The volume is expressed in grams [cm^3]. Accept inserted value by pressing key.
- Press **<** **Temperature>** key and specify the temperature in which the test of liquid density determination is carried out. The temperature value is expressed in [°C]. Accept inserted value by pressing key. The temperature serves here for information purpose, and it is placed on reports from carried out processes.
- On specifying the parameters exit to main menu of the density mode by pressing key and saving inserted changes.
- In order to start density determination using a pycnometer, press **<** **Determine pycnometer density>** key, using a pre-defined hot keys on terminal's display.

Caution:

If in the local parameters, **<** ***Ask about sample number>*** *function is enabled, then on initiating the process, the system asks for inserting the number of tested sample. The inserted sample number is linked to the process data and saved in the database.*

- The first phase of density determination process is weighing a pycnometer (if its mass has been determined as "**0**" in the local parameters) – place an empty pycnometer on scale's weighing platform. On obtaining stable measurement result, accept it by pressing key. If mass of a pycnometer has been determined in parameter **<** **Pycnometer mass>,** then this phase of the process is omitted,
- Then place on the scale's weighing platform a pycnometer filled with liquid. On obtaining stable measurement result, carry out the measuring process, and accept it by pressing key,

- On carrying out the measurement of the pycnometer with tested liquid, the scale determines the density of the liquid, and the density determination result is indicated on terminal's display. If the user needs a report from the density determination process, it can be printed on a plugged printer by pressing key. The density determination process is then completed,
- A report from density determination using a pycnometer is saved in **<** **Density>** database. The report is named by process date.

28.3.4. Determining density of a porous body

Determining density of a porous body is carried out in three phases:

- Weighing a porous body in the air,
- Weighing in the air of a porous body impregnated with oil,
- Weighing in auxiliary liquid of a porous body impregnated with oil.

In case of porous objects, it is necessary to carry out an oil bath, which fills and closes the pores of the material before its actual weighing in the auxiliary liquid.

Process course:

- Press **<** **Local parameters>** key to enter the setting of local parameters in density mode.
- Press **<** **Standard liquid>** key to select the auxiliary liquid used for the density determination procedure. If the auxiliary liquid is other than "Water" or "Alcohol", then select "Other" from the available list.
- Press **<** **Temperature>** key and specify the temperature of the auxiliary liquid [°C]. Accept inserted value by pressing key.
- If „Other" liquid has been selected, then press **<** **Standard liquid density>** insert the density value of the auxiliary liquid expressed in **[g/cm^3]** for the specified temperature of the measurement.
- On specifying the parameters exit to main menu of the density mode by pressing key and saving inserted changes.

- In order to start density determination of porous body, press **<** **Determine porous body density>** key, using a pre-defined hot keys on terminal's display.

Caution:

If in the local parameters, **<** 00285 ***Ask about sample number>*** *function is enabled, then on initiating the process, the system asks for inserting the number of tested sample. The inserted sample number is linked to the process data and saved in the database.*

- The first phase of the density determination of a porous body in the air. Place the object on the scale's weighing platform. On obtaining stable measurement result, accept it by pressing key,
- Then immerse the tested porous body in oil to fill its pores. Place the tested porous body impregnated with oil on scale's weighing platform. On obtaining stable measurement result, carry out the measuring process, and accept it by pressing key,
- In the third step, weight the tested porous object impregnated with oil in the auxiliary liquid. Place the tested object in the auxiliary liquid, on scale's weighing platform and immerse both in the auxiliary liquid. On obtaining stable measurement result, carry out the measuring process, and accept it by pressing key,
- On carrying out the third measurement, the scale automatically determines the density of the porous body, and indicates the result on terminal's display. If the user needs a report from the density determination process, it can be printed on a plugged printer by pressing key. The density determination process is then completed,
- A report from density determination of a porous body is saved in **<** **Density>** database. The report is named by process date.

28.4. Reporting from completed density determination processes

On completing each density determination process, the scale's software automatically generates a report.

Caution:

Submenu: " ***Devices /*** ***Printer /*** ***Printouts /*** ***Density printout template"*** *enables optional configuration of report template (see ch. 16.2.3 of this user manual).*

Default form of the report from density determination template:

```
-----------------------------------------
Density
-----------------------------------------
{40:Operator:,-25}{75}
{40:Start date:,-25}{155}
{40:End date:,-25}{156}
{40:Standard liquid:,-25}{158}
{40:Method:,-25}{157}
{40:Weighing 1:,-25}{165}
{40:Weighing 2:,-25}{166}
{40:Density:,-25}{162}{163}
-----------------------------------------
```

The report from each completed density determination process is simultaneously saved in the database of **<** **Density>**, where the files are named by their date and hour of process execution. List of data for the density determination process – see ch. 30.7.7 of this user manual.

28.5. Table of density parameter for water

T/°C	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
10.	0.99973	0.99972	0.99971	0.99970	0.99969	0.99968	0.99967	0.99966	0.99965	0.99964
11.	0.99963	0.99962	0.99961	0.99960	0.99959	0.99958	0.99957	0.99956	0.99955	0.99954
12.	0.99953	0.99951	0.99950	0.99949	0.99948	0.99947	0.99946	0.99944	0.99943	0.99942
13.	0.99941	0.99939	0.99938	0.99937	0.99935	0.99934	0.99933	0.99931	0.99930	0.99929
14.	0.99927	0.99926	0.99924	0.99923	0.99922	0.99920	0.99919	0.99917	0.99916	0.99914
15.	0.99913	0.99911	0.99910	0.99908	0.99907	0.99905	0.99904	0.99902	0.99900	0.99899
16.	0.99897	0.99896	0.99894	0.99892	0.99891	0.99889	0.99887	0.99885	0.99884	0.99882
17.	0.99880	0.99879	0.99877	0.99875	0.99873	0.99871	0.99870	0.99868	0.99866	0.99864
18.	0.99862	0.99860	0.99859	0.99857	0.99855	0.99853	0.99851	0.99849	0.99847	0.99845
19.	0.99843	0.99841	0.99839	0.99837	0.99835	0.99833	0.99831	0.99829	0.99827	0.99825
20.	0.99823	0.99821	0.99819	0.99817	0.99815	0.99813	0.99811	0.99808	0.99806	0.99804
21.	0.99802	0.99800	0.99798	0.99795	0.99793	0.99791	0.99789	0.99786	0.99784	0.99782
22.	0.99780	0.99777	0.99775	0.99773	0.99771	0.99768	0.99766	0.99764	0.99761	0.99759
23.	0.99756	0.99754	0.99752	0.99749	0.99747	0.99744	0.99742	0.99740	0.99737	0.99735
24.	0.99732	0.99730	0.99727	0.99725	0.99722	0.99720	0.99717	0.99715	0.99712	0.99710
25.	0.99707	0.99704	0.99702	0.99699	0.99697	0.99694	0.99691	0.99689	0.99686	0.99684
26.	0.99681	0.99678	0.99676	0.99673	0.99670	0.99668	0.99665	0.99662	0.99659	0.99657
27.	0.99654	0.99651	0.99648	0.99646	0.99643	0.99640	0.99637	0.99634	0.99632	0.99629
28.	0.99626	0.99623	0.99620	0.99617	0.99614	0.99612	0.99609	0.99606	0.99603	0.99600
29.	0.99597	0.99594	0.99591	0.99588	0.99585	0.99582	0.99579	0.99576	0.99573	0.99570
30.	0.99567	0.99564	0.99561	0.99558	0.99555	0.99552	0.99549	0.99546	0.99543	0.99540

28.6. Table of density parameter for ethyl alcohol

T/°C	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
10.	0.79784	0.79775	0.79767	0.79758	0.79750	0.79741	0.79733	0.79725	0.79716	0.79708
11.	0.79699	0.79691	0.79682	0.79674	0.79665	0.79657	0.79648	0.79640	0.79631	0.79623
12.	0.79614	0.79606	0.79598	0.79589	0.79581	0.79572	0.79564	0.79555	0.79547	0.79538
13.	0.79530	0.79521	0.79513	0.79504	0.79496	0.79487	0.79479	0.79470	0.79462	0.79453
14.	0.79445	0.79436	0.79428	0.79419	0.79411	0.79402	0.79394	0.79385	0.79377	0.79368
15.	0.79360	0.79352	0.79343	0.79335	0.79326	0.79318	0.79309	0.79301	0.79292	0.79284
16.	0.79275	0.79267	0.79258	0.79250	0.79241	0.79232	0.79224	0.79215	0.79207	0.79198
17.	0.79190	0.79181	0.79173	0.79164	0.79156	0.79147	0.79139	0.79130	0.79122	0.79113
18.	0.79105	0.79096	0.79088	0.79079	0.79071	0.79062	0.79054	0.79045	0.79037	0.79028
19.	0.79020	0.79011	0.79002	0.78994	0.78985	0.78977	0.78968	0.78960	0.78951	0.78943
20.	0.78934	0.78926	0.78917	0.78909	0.78900	0.78892	0.78883	0.78874	0.78866	0.78857
21.	0.78849	0.78840	0.78832	0.78823	0.78815	0.78806	0.78797	0.78789	0.78780	0.78772
22.	0.78763	0.78755	0.78746	0.78738	0.78729	0.78720	0.78712	0.78703	0.78695	0.78686
23.	0.78678	0.78669	0.78660	0.78652	0.78643	0.78635	0.78626	0.78618	0.78609	0.78600
24.	0.78592	0.78583	0.78575	0.78566	0.78558	0.78549	0.78540	0.78532	0.78523	0.78515
25.	0.78506	0.78497	0.78489	0.78480	0.78472	0.78463	0.78454	0.78446	0.78437	0.78429
26.	0.78420	0.78411	0.78403	0.78394	0.78386	0.78377	0.78368	0.78360	0.78351	0.78343
27.	0.78334	0.78325	0.78317	0.78308	0.78299	0.78291	0.78282	0.78274	0.78265	0.78256
28.	0.78248	0.78239	0.78230	0.78222	0.78213	0.78205	0.78196	0.78187	0.78179	0.78170
29.	0.78161	0.78153	0.78144	0.78136	0.78127	0.78118	0.78110	0.78101	0.78092	0.78084
30.	0.78075	0.78066	0.78058	0.78049	0.78040	0.78032	0.78023	0.78014	0.78006	0.77997

29. WORKING MODES – WEIGHING ANIMALS

Working mode **<Animals weighing>** enables weighing objects which do not stabilize if placed on scale's weighing platform and while carrying out weighing process. Weighing process is achieved by implementing parameter of time for stability of measurement, which is set in global parameters of the working mode. This working mode is mainly utilized for weighing different kids of animals. The mode may be controlled automatically or manually – i.e. the weighing process is triggered manually or automatically.

29.1. Starting the operating mode

Procedure:

- While in main window of the software, press on-screen key, located in the upper bar of the window, which opens submenu **<Working Modes>** containing list of available working modes,
- Select working mode **<Animals weighing >**, the software automatically returns to displaying the main window, and the upper bar indicates the icon of selected working mode,
- Simultaneously, an additional hot key is activated on the far right side of the bottom tool bar:

Start animal weighing process

29.2. Local setting of a working mode

Local settings for the working mode **<Weighing animals>** are accessible on pressing a hot key **<Local parameters>**:

	Checkweighing	Detailed description in ch. 23.3 of the user manual
	Tare mode	Detailed description in ch. 23.4 of the user manual
	Labelling mode	Detailed description in ch. 23.5 of the user manual
	Statistics	Detailed description in ch. 23.6 of the user manual

	Averaging time	Declaration of process duration in seconds (from 1s to 90s) – measurements carried out in set time interval are used to calculate mean value, which is the result of the measurement
	Automatic mode	Operation mode, in which the scale automatically begins the following measuring process, if the load placed on scale's weighing platform exceeds value of mass set in **LO** threshold.

29.3. Carrying out animals weighing procedure

- Enter the working mode **<** **Animals weighing>** according to ch. 29.1 of this user manual,
- Should the tested animal be weighed in a container, load the container of scale's weighing platform and tare its mass,
- On placing the tested animal on the scale's weighing platform (in the tarred container), press key (Process start), which displays a message box indicating course of the process,
- The message box contains data on:
  - Progress bar indicated in %,
  - Value of averaging time interval, set in local parameters,
  - key enabling aborting the process,
- On completing the measuring process, the value of measured result is locked in the message box,
- Confirm completing the process by pressing key.

30. DATABASES

WLY databases hold different data:

Products

Operators

Weighings / Alibi

Clients

Recipes

Reports from recipes

Density

Packages

Warehouses

Labels

Universal variables

In order to enter <**Databases>**, press SETUP and choose <**Databases>**.

30.1. Searching databases

Users can quickly search databases according to the following criteria:

- Name,
- Code.

The quick search according to the criteria above is applicable for databases of: operators, products, clients, packages, warehouses and labels.

Additionally users can search the weighing database according to <**weighing date>**.

30.1.1. Quick name search

Procedure:

- Enter <**Databases>** according to ch. 30 of the manual,

- Enter < **Products>**,
- Press , then an editing field appears **<Search by name>** with the screen keyboard,
- Inscribe the name of a product or its part and press .
- The program will automatically edit the required product.

30.1.2. Quick code search

Procedure:

- Enter < **Databases>** according to ch. 30 of the manual,
- Enter < **Products>**,
- Press , then an editing field appears **<Search by code>** with the screen keyboard,
- Inscribe the name of a product or its part and press .
- The program will automatically edit the required product.

30.1.3. Weighing date search

Procedure:

- Enter < **Databases>** according to ch. 30 of the manual,
- Enter < **Weighings>**,
- Press , then an editing field appears **<Specify year>** with the screen keyboard,
- Inscribe: year, month, day, hour, minute of weighing and confirm it by pressing .
- The program will automatically display the list of weighings putting at the top the position with the entered date.

30.2. Adding new items in databases

Procedure:

- Enter **<Databases>** according to ch. 30 of this manual,
- Enter database **<Products>**,
- Press , then the message is displayed: **<Create new record?>**,
- Confirm it by pressing , the program automatically enters edition of new record.

Notice:
Adding new records in databases is possible only by logged-in administrators. It does not concern the database of weighings.

30.3. Deleting items in databases

Procedure:

- Enter **<Databases>** according to ch. 30 of the manual,
- Enter **<Products>**,
- Give a long press to the item, then the context menu is displayed,
- Press **<Delete>**, then a message is displayed:
  <Are you sure you want to delete?>,
- Confirm it by pressing .

Caution:
Deleting records in databases is possible only by logged-in administrators. It does not concern the database of weighings.

30.4. Deleting older data

A user after logging on as **administrator** can delete older position in the database of weighings **<Weighing / Alibi>**.

Caution:
Factory settings prevent users from deleting weighings that are up to one year old. Because of incompatible regulations in different countries concerning the time of protecting data this period can be modified by distributors.

Procedure:

- Enter the submenu **<Databases>** according to ch. 30 of the manual,
- Enter **<Delete older data>**, then an editing field is displayed **<Give year>** with the screen keyboard,
- Give a date before which data need to be removed and confirm it by pressing ,

  Caution:
  If a user enters a date from the protected period the program displays a message box: ***<Wrong value>****.*

- After entering a date beside protected period the program displays a message box: **<Are you sure you want to delete?>**,
- After it is confirmed by the program will start removing data and after completing it displays the number of deleted records,
- Press to leave.

30.5. Printing items from databases

Users can print any record in databases.

Procedure:

- Enter the submenu **<Databases>** according to ch. 30 of the manual,
- Enter **<Products>** and press the required item,
- After editing the required record press in the top bar of the display,
- If a printer is connected information about the selected product is printed.

Notice:
Default printout templates for printing records from different databases are described in ch. 16.2.3 of this manual.

30.6. Export a database to a file

An operator after a series of weighings can export a database to a file using a pendrive.

Procedure:

- Connect a pendrive to USB,
- Enter submenu **<** **Databases>** according to ch. 30 of this manual,
- Enter option **<** **Export database of weighings to a file>**, the program automatically starts saving the database on the pendrive,

Notice:

In case a pendrive is not recognized after entering **<** **Export database of weighings to a file>** *a message is displayed:* ***<Operation failed>****.*

- After the operation has been completed: **„Operation finished successfully”** is displayed together with the file name (with extension *.txt) created on the pendrive,

Notice:
The file name consists of a database name and scale factory number, e.g. ***<Weighings_239800.txt>****.*

- Disconnect the pendrive to USB.

File template:

The created file comprises a table with columns separated by tabulation characters **<Tab>** in case to allow direct export to a spreadsheet **<Excel>**. The table includes all information about weighings in subsequent columns:

- Date&time,
- Weighing result with unit,
- Tare value with unit,
- Batch number,

- Operator name,
- Client name,
- Package name,
- Source warehouse,
- Target warehouse,
- Checkweighing.

30.7. Database edition

The database edition can be performed by an administrator.

30.7.1. Operators' database

Procedure:

- Enter < **Databases>** according to ch. 30 of this manual,
- Enter < **Operators>** and press the required position.

Record of operator:

	Name	Operator name
	Code	Operator code
	Password	Password to log on (max. 16 characters)
	Access level	Authorization access level
	Card number	Transponder card reader for logging on

30.7.2. Database of products

Procedure:

- Enter < **Databases>** according to ch. 30 of this manual,
- Enter < **Products>**and press the required position.

Product record:

	Name	Product name
	Code	Product code
	EAN code	Product barcode
	Mass	Nominal product mass
	Batching outputs	Declaring numbers of outputs for fine dosing
	Bulk batching output	Declaring numbers of outputs for bulk dosing
	Correction 1	Value of dosing correction for weighing platform no. 1
	Correction 2	Value of dosing correction for weighing platform no. 2
	Correction 3	Value of dosing correction for weighing platform no. 3
	Correction 4	Value of dosing correction for weighing platform no. 4
	Maximum correction value	Maximal value of dosing correction
	Min	Minimum mass for checkweighing
	Max	Maximum mass for checkweighing
	Tare	Tare value (it is preset automatically after selecting a product)
	Price	Unit price
	Number of validity dates	Number of days to calculate expiry date
	Date	Constant product date
	VAT	Value Added Tax in [%]
	Ingredients	Dialogue box for entering ingredients

	Label	Basic label template attributed to a product
	C Label	Cumulative label template attributed to a product
	CC Label	Cumulative of cumulative label template attributed to a product

30.7.3. Database of Weighings / Alibi

Every weighing sent from a scale to a printer or a computer is saved in the database of **<** **Weighings / Alibi>**. Users can view the data afterwards.

Procedure:

- Enter **<** **Databases>** according to ch. 30 of this manual,
- Enter **<** **Weighings / Alibi>** and press the required position.

Weighing record:

	Date	Weighing date
	Mass	Weighing result
	Tare	Tare value
	Product	Product name
	Operator	Operator name
	Client	Client name
	Batch number	Number of produced batch

	Source warehouse	Source warehouse name
	Target warehouse	Target warehouse name
	Package	Package name
	Checkweighing	A weighing threshold (MIN, OK or MAX)
	Platform number	Platform number to perform weighings

30.7.4. Database of clients

Procedure:

- Enter <**Databases>** according to ch. 30 of this manual,
- Enter <**Client>** and press the required position.

Client records:

	Name	Client's name
	Code	Client's code
	Tax ID	Client's tax ID
	Address	Client's address
	Postal code	Client's postal code
	City	Client's Town/City
	Discount	Client's discount
	Label	Client's label template

30.7.5. Database of formulas

Procedure:

- Enter **<Databases>** according to ch. 30 of this manual,
- Enter **<Recipes>** and press the required position.

List of data for a specific formulation:

	Name	Formulation name
	Code	Formulation code
	Platform 1	Weighing platform no. 1 determined for a specific terminal
	Platform 2 *	Weighing platform no. 2 determined for a specific terminal
	Platform 3 *	Weighing platform no. 3 determined for a specific terminal
	Platform 4 *	Weighing platform no. 4 determined for a specific terminal

***) –** number of weighing platforms depends on determined data in the terminal settings

30.7.6. Database of reports from formulation

Procedure:

- Enter **<Databases>** according to ch. 30 of this manual,
- Enter **<Report from recipes>** and press the required position.

List of data for a specific report from a formulation:

	Status	Status of correctness for a completed formulation
	Start date	Start date of formula making process
	End date	End date of formula making process

	Recipes	Name of completed formulation
	Operator	Operator preparing a formulation
	Client	Client for which the formulation is prepared
	Number of Measurements	Number of measurements within a completed formula making process

30.7.7. Database of density

Procedure:

- Enter **<Databases>** according to ch. 30 of this manual,
- Enter **<Density>** and press the required position.

List of data for a specific report from density determination process:

	Sample number	Number of sample for which the density is determined
	Start date	Start date of density determination process
	End date	End date of density determination process
	Density	Value of determined density
	Volume	Value of determined volume
	Determination method	Method used in process of determining density
	Operator	Operator carrying out density determination process
	Product	Product for which density is determined
	Standard liquid	Standard liquid utilized during density determination process
	Standard liquid density	Density value assigned to the standard liquid

	Temperature	Temperature of the density determination process
	Sinker volume	Value of sinker's volume immersed in tested liquid
	Weighing 1	Mass value of the 1 measurement
	Weighing 2	Mass value of the 2 measurement
	Weighing 3	Mass value of the 3 measurement
	Pycnometer mass	Value of pycnometer's mass utilized during density determination process
	Pycnometer density	Value of pycnometer's volume utilized during density determination process

30.7.8. Database of packages

Procedure:

- Enter **Databases>** according to ch. 30 of this manual,
- Enter **Packages>** and press the required position.

Package record:

	Name	Package name
	Code	Package code
	Mass	Package weight (set automatically after choosing after choosing a package from the database)

30.7.9. Database of warehouses

Procedure:

- Enter **Databases>** according to ch. 30 of this manual,

- Enter **<** **Warehouses>** and press the required position.

Warehouse record:

	Name	Warehouse name
	Code	Warehouse code
	Description	Additional warehouse description

30.7.10. Database of labels

The database comprises templates of labels which users can attribute to products or clients to operate in labelling mode.

Procedure of editing databases:

- Enter **<** **Databases>** according to ch. 30 of this manual,
- Enter **<** **Labels>** and press the required position.

Label record:

	Name	Label name
	Code	Label code
	Label template*	Label printout template

***)** *Ways of designing and sending templates to a scale can be found in **APPENDIX C** of this manual.*

30.7.11. Database of universal variables

The database include templates of general purpose variables which users can attribute to screen function buttons

in order to enter any alphanumeric text intended to be printed.

Notice:
The procedure of attributing functions to buttons is described in ch. 17.2 of this manual.

Procedure of editing databases:

- Enter **<** **Databases>** according to ch. 30 of this manual,
- Enter **<**

Universal variables> and press the required position.

Universal variable record:

	Code	Universal variable code
	Value to pay	Universal variable value intended to be printed

31. COMMUNICATION PROTOCOL

31.1. General information

A. A character protocol scale-terminal has been designed for communication between RADWAG scales and external devices via RS-232 interface.
B. It consists of commands sent from an external device to the scale and responses from a scale.
C. Responses are sent every time after receiving a command (reaction for any command).
D. Using commands allows users to receive some information about the state of scale and/or influence the operation e.g.: Requesting weighing results, display control.

31.2. Inventory of RS commands

Commands	Description of commands
Z	Zeroing
T	Tarring
OT	Get tare value
UT	Set tare value
S	Send the stable result in basic unit
SI	Send the result immediately in basic unit
SIA	Send immediate results from all platforms in basic units
SU	Send the stable result in current unit
SUI	Send the result immediately in current unit
C1	Switch on continuous transmission in basic unit
C0	Switch off continuous transmission in basic unit
CU1	Switch on continuous transmission in current unit
CU0	Switch off continuous transmission in current unit
DH	Set lower threshold
UH	Set upper threshold
ODH	Read lower threshold
OUH	Read upper threshold
PC	Send all implemented commands

Notice:

1. *Each command have to be terminated in CR LF;*
2. *The best Policy for communication is not sending another command until the former answer has been received.*

31.3. Respond message format

After sending a request message you can receive:

XX_A CR LF	command accepted and in progress
XX_D CR LF	command completed (appears only after XX_A)
XX_I CR LF	command comprehended but cannot be executed

XX _ ^ CR LF	command comprehended but time overflow error appeared
XX _ v CR LF	command comprehended but the indication below the
XX _ OK CR LF	Command done
ES_CR LF	Command not comprehended
XX _ E CR LF	error while executing command – time limit for stable result exceeded (limit time is a descriptive parameter of the scale)

XX - command name
_ - substitute's spaces

31.4. Command's description

31.4.1. Zeroing

Syntax **Z CR LF**

Possible answers:

Z_A CR LF - command accepted and in progress
Z_D CR LF - command completed

Z_A CR LF - command accepted and in progress
Z_^ CR LF - command comprehended but zero range overflow appeared

Z_A CR LF - command accepted and in progress
Z_E CR LF - time limit for stable result exceeded

Z_I CR LF - command comprehended but cannot be executed

31.4.2. Tarring

Syntax: **T CR LF**

Possible answers:

T_A CR LF - command accepted and in progress
T_D CR LF - command completed

T_A CR LF - command accepted and in progress
T_v CR LF - command comprehended but tare range overflow appeared

T_A CR LF - command accepted and in progress
T_E CR LF - time limit for stable result exceeded

T_I CR LF - command comprehended but cannot be executed

31.4.3. Get tare value

Syntax: **OT CR LF**

Reply: **OT_TARA CR LF** – command executed

Frame format:

1	2	3	4-12	13	14	15	16	17	18	19
O	T	space	tare	space	unit			space	CR	LF

Tare - 9 characters justified to the right
Unit - 3 characters justified to the left

Notice:
Tare values are always send in calibration unit.

31.4.4. Set tare value

Syntax: **UT_TARE CR LF**, where **TARE** – tare value

Possible replies:

UT_OK CR LF - command completed
UT_I CR LF - command correct, but not accessible at the moment
ES CR LF - command incorrect (e.g. incorrect tare format)

Notice:
Use dots as decimal points in tare values.

31.4.5. Send the stable result in basic unit

Syntax: **S CR LF**

Possible answers:

S_A CR LF - command accepted and in progress
S_E CR LF - time limit for stable result exceeded

S_I CR LF - command comprehended but cannot be executed

S_A CR LF - command accepted and in progress
MASS FRAME - mass value in basic unit is returned

Frame format:

1	2-3	4	5	6	7-15	16	17	18	19	20	21
S	space	stability	space	sign	mass	space	unit			CR	LF

Example:

S CR LF – computer command
S _ A CR LF - command accepted and in progress
S _ _ _ _ - _ _ _ _ _ _ 8 . 5 _ g _ _ CR LF – command done, mass value in basic unit is returned.

31.4.6. Send the result immediately in basic unit

Syntax: **SI CR LF**

Possible answers:

SI_I CR LF - command comprehended but cannot be executed at the moment
MASS FRAME - mass value in basic unit is returned

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	I	space	stability	space	sign	mass	space	unit			CR	LF

Example:

S I CR LF – computer command
S I _ ? _ _ _ _ _ _ _ 1 8 . 5 _ k g _ CR LF - command done, mass value in basic unit is returned immediately.

31.4.7. Send immediate results from all platforms in basic units

Syntax: **SIA CR LF**

Possible answers:

SIA_I CR LF - command comprehended but cannot be executed at the moment

MASS FRAME „P1" CR LF
MASS FRAME „P2" CR LF - mass values are immediately returned from all platforms in basic units

Frame format with mass from subsequent platforms as indicator reply:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
P	n	space	stability	space	sign	mass	space	unit			CR	LF

n - weighing platform number
mass - 9 characters justified to the right
unit - 3 characters justified to the left

Example:

Let us assume that both platforms are connected to indicator PUE HY.

S I A CR LF – computer command
P 1 _ ? _ _ _ _ _ _ 1 1 8 . 5 _ g _ _ CR LF
P 2 _ _ _ _ _ _ _ _ _ 3 6 . 2 _ k g _ CR LF - command done, mass values from both platforms are returned in basic units

31.4.8. Send the stable result in current unit

Syntax: **SU CR LF**

Possible answers:

SU_A CR LF - command accepted and in progress
SU_E CR LF - timeout while waiting for stable results

SU_I CR LF - command comprehended but cannot be executed

SU_A CR LF - command accepted and in progress
MASS FRAME - mass value in current unit is returned

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	U	space	stability	space	sign	mass	space	unit			CR	LF

Example:

S U CR LF – computer command
S U _ A CR LF - command accepted and in progress
S U _ _ _ - _ _ 1 7 2 . 1 3 5 _ N _ _ CR LF - command done, mass value in current unit is returned.

31.4.9. Send the result immediately in current unit

Syntax: **SUI CR LF**

Possible answers:

SUI_I CR LF - command comprehended but cannot be executed

MASS FRAME - mass value in current unit is returned immediately

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	U	I	stability	space	sign	mass	space	unit			CR	LF

Example:

S U I CR LF – computer command
S U I ? _ - _ _ _ 5 8 . 2 3 7 _ k g _ CR LF - command executed and mass returned

31.4.10. Switch on continuous transmission in basic unit

Syntax: **C1 CR LF**

Possible answers:

C1_I CR LF - command comprehended but cannot be executed

C1_A CR LF - command comprehended and in progress
MASS FRAME - mass value in basic unit is returned

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	I	space	stability	space	sign	mass	space	unit			CR	LF

31.4.11. Switch off continuous transmission in basic unit

Syntax: **C0 CR LF**

Possible answers:

C0_I CR LF - command comprehended but cannot be executed

C0_A CR LF - command comprehended and executed

31.4.12. Switch on continuous transmission in current unit

Syntax: **CU1 CR LF**

Possible answers:

CU1_I CR LF - command comprehended but cannot be executed

CU1_A CR LF - command comprehended and in progress
MASS FRAME - mass value in current unit is returned

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	U	I	stability	space	sign	mass	space	unit			CR	LF

31.4.13. Switch off continuous transmission in current unit

Syntax: **CU0 CR LF**

Possible answers:

CU0_I CR LF - command comprehended but cannot be executed
CU0_A CR LF - command comprehended and executed

31.4.14. Set lower threshold

Syntax: **DH_XXXXX CR LF**, where: **XXXXX** – mass format

Possible answers:

DH_OK CR LF - command executed
ES CR LF - command not comprehended (wrong mass format)

31.4.15. Set upper threshold

Syntax: **UH_XXXXX CR LF**, where: **XXXXX** – mass format

Possible answers:

UH_OK CR LF - command executed
ES CR LF - command not comprehended (wrong mass format)

31.4.16. Read lower threshold

Syntax: **ODH CR LF**

Possible answers: **DH_MASA CR LF** - command executed

Frame format:

1	2	3	4-12	13	14	15	16	17	18	19
D	H	space	mass	space	unit			space	CR	LF

Mass - 9 characters justified to the right
Unit - 3 characters justified to the left

31.4.17. Read upper threshold

Syntax: **OUH CR LF**

Possible answers: **UH_MASA CR LF** - command executed

Frame format:

1	2	3	4-12	13	14	15	16	17	18	19
U	H	space	mass	space	unit			space	CR	LF

Mass - 9 characters justified to the right
Unit - 3 characters justified to the left

31.4.18. Send all implemented commands

Syntax: **PC CR LF**

Possible answers:

PC_A_"Z,T,S,SI,SIA,SU,SUI,C1,C0,CU1,CU0,DH,ODH,UH,OUH,OT,UT, PC" – command executed, the indicator have sent all the implemented commands.

31.5. Manual printouts / automatic printouts

Users can general manual or automatic printouts from the scale.

- Manual printouts can be performed after loading the pan and stabilizing indication by pressing **ENTER/PRINT**.
- Automatic printouts can be performed only after loading the pan and stabilizing indication.

Format frame:

1	2	3	4 -12	13	14	15	16	17	18
stability	space	sign	mass	space	unit			CR	LF

Stability character	[space] if stable [?] if not stable [^] if an indication over the range [v] if fan indication below the range
sign	[space] for positive values or [-] for negative values
mass	9 characters justified to the right
unit	3 characters justified to the left
command	3 characters justified to the left

Example:

_ _ _ _ _ _ **1 8 3 2 . 0** _ **g** _ _ **CR LF –** the printout generated from the scale after pressing **ENTER/PRINT**.

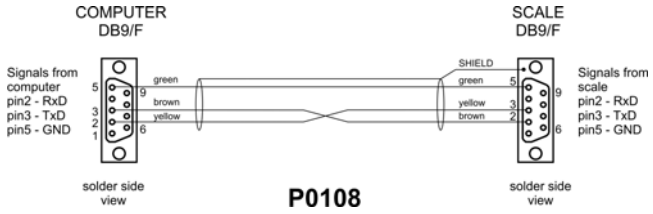
32. COOPERATION WITH EXTERNAL DEVICES

WLY scales can cooperate with the following devices:

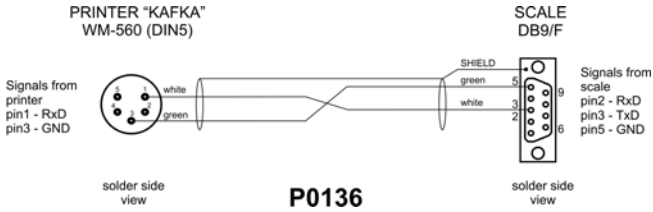
- Computer,
- Receipt printer,
- Label printer,
- Additional display,
- Barcode scanner,
- Any peripheral device with the compatible ASCII protocol.

33. DIAGRAMS OF CONNECTION CABLES

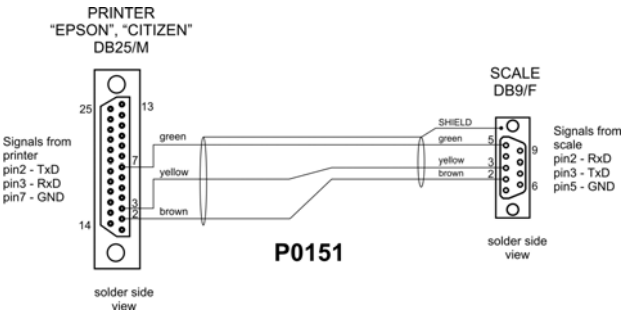
Notice:
Cable „scale – Ethernet" is a standard network cable with RJ45 connectors on both sides.



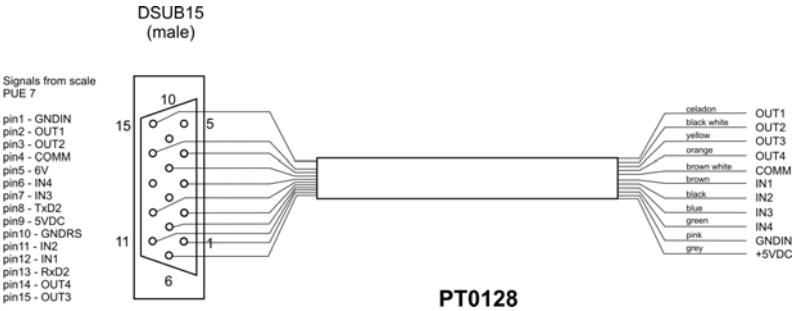
Scale – computer cable



Scale – Kafka printer cable



Scale – printer (CITIZEN, EPSON) cable



Scale – I/O cable

34. TECHNICAL PARAMETERS

34.1. Scales of WLY/C series

Scale type:	WLY 6/C1/R WLY 6/C1/K	WLY 12/C1/R WLY 12/C1/K	WLY 30/C1/R WLY 30/C1/K	WLY 6/12/C1/R WLY 6/12/C1/K	WLY 12/30/C1/R WLY 12/30/C1/K
	M	-	-	-	-
Maximum capacity	6kg	12kg	30kg	6 / 12kg	12 / 30kg
Minimum capacity	5g	-	-	-	-
Reading division [d]	0,1g	0,2g	0,5g	0,1 / 0,2g	0,2 / 0,5g
Verification interval [e]	1g	-	-	-	-
Tare range	-6kg	-12kg	-30kg	-12kg	-30kg
Repeatability	0,3g	0,6g	1,5g	0,1 / 0,2g	0,2 / 0,5g
Linearity	±0,3g	±0,6g	±1,5g	±0,1 / 0,2g	±0,2 / 0,5g
OIML Class	II	-			
Stabilization time	3s				
Pan size	360 x 290mm				
Operation temperature	+15°C to +30°C				
Storage temperature	-25°C to +70°C				
Ingress protection rating	IP 54				
Power supply	110÷230VAC 50/60Hz – 10,5÷15VDC				
Display	5,7'' with touch panel				
Interfaces	2 x USB, 2 x RS232, Ethernet, 4In / 4Out				
Net / Gross weight	6,5 / 7,8kg				
Package dimensions	550 x 420 x 220mm				

Scale type:	WLY 60/C2/R WLY 60/C2/K	WLY 60/120/C2/R WLY 60/120/C2/K
	M	-
Maximum capacity	60kg	60 / 120kg
Minimum capacity	50g	-
Reading division [d]	1g	1 / 2g
Verification interval [e]	10g	-
Tare range	-60kg	-120kg
Repeatability	1g	1 / 2g
Linearity	±1g	±1 / 2g
OIML Class	II	-
Stabilization time	3s	
Pan size	400 x 500mm	
Operation temperature	+15°C to +30°C	
Storage temperature	-25°C to +70°C	
Ingress protection rating	IP 54	
Power supply	110÷230VAC 50/60Hz – 10,5÷15VDC	
Display	5,7'' with touch panel	
Interfaces	2 x USB, 2 x RS232, Ethernet, 4In / 4Out	
Net / Gross weight	15,5 / 17,8kg	
Package dimensions	720 x 580 x 220mm	

34.2. Scales of WLY/D series

Scale type:	**WLY/2 0,6/1,2/D2**	**WLY/2 1,2/3/D2**	**WLY/2 1/D2**	**WLY/2 2/D2**
Maximum capacity	0,6 / 1,2kg	1,2 / 3kg	1kg	2kg
Minimum capacity	-	-	-	-
Reading division [d]	0,01 / 0,02g	0,02 / 0,05g	0,01g	0,01g
Verification interval [e]	-	-	-	-
Tare range	-1,2kg	-3kg	-1kg	-2kg
Repeatability	0,01 / 0,02g	0,02 / 0,05g	0,03g	0,03g
Linearity	±0,01 / 0,02g	±0,02 / 0,05g	±0,03g	±0,03g
OIML Class	-			
Stabilization time	3s			
Pan size	195 x 195mm			
Operation temperature	+15°C to +30°C			
Storage temperature	-25°C to +70°C			
Ingress protection rating	IP 54			
Power supply	110÷230VAC 50/60Hz – 10,5÷15VDC			
Display	5,7'' with touch panel			
Interfaces	2 x USB, 2 x RS232, Ethernet, 4In / 4Out			
Net / Gross weight	2,7 / 3,6kg			
Package dimensions	490 x 300 x 150mm			

Scale type:	**WLY/2 3/6/D2**	**WLY/2 6/12/D2**	**WLY/2 6/D2**	**WLY/2 10/D2**	**WLY/2 20/D2**
	-	**-**	**M**	**-**	**-**
Maximum capacity	3 / 6kg	6 / 12kg	6kg	10kg	20kg
Minimum capacity	-	-	5g	-	-
Reading division [d]	0,05 / 0,1g	0,1 / 0,2g	0,1g	0,1g	0,1g
Verification interval [e]	-	-	1g	-	-
Tare range	-6kg	-12kg	-6kg	-10kg	-20kg
Repeatability	0,05 / 0,1g	0,1 / 0,2g	0,3g	0,3g	0,3g
Linearity	±0,05 / 0,1g	±0,1 / 0,2g	±0,3g	±0,3g	±0,3g
OIML Class	-		II	-	
Stabilization time	3s				
Pan size	195 x 195mm				
Operation temperature	+15°C to +30°C				
Storage temperature	-25°C to +70°C				
Ingress protection rating	IP 54				
Power supply	110÷230VAC 50/60Hz – 10,5÷15VDC				
Display	5,7'' with touch panel				
Interfaces	2 x USB, 2 x RS232, Ethernet, 4In / 4Out				
Net / Gross weight	2,7 / 3,6kg				
Package dimensions	490 x 300 x 150mm				

35. ERROR MESSAGES

Err2	-	Value beyond the zero range,
Err3	-	Value beyond the tare range,
Err8	-	Tarring / zeroing operation time exceeded,
NULL	-	Zero value from the AD converter,
FULL	-	Measurement range overflow,
HI		Display range overflow,
LH	-	Start mass error, the mass on the weighing platform is beyond the acceptable range (-5% to +15% of start mass)

36. ADDITIONAL EQUIPMENT

Accessories:

- KAFKA printer cable - **P0136**,
- Computer cable - **P0108**,
- EPSON printer cable - **P0151**,
- Thermal printer - **KAFKA**,
- Dot matrix printer - **EPSON**,
- Label printer - **CITIZEN**,
- Additional display in plastic casing - **WD- 4/1**,
- Large size display (2") - **WWG-2**,
- Transponder card reader - **CK-01**,
- Barcode scanner - **LS2208**,
- Current loop in plastic casing - **AP2-1**,
- Handle for measuring indicator in plastic casing - **PUE-7-32**,
- Mild steel vibration damping table a scale WLY D2, WLY C1 series - **SAL/M**,
- PC keyboard.

Computer programs:

- **"EDYTOR ETYKIET"** computer program,
- **"RAD-KEY"** computer program,
- **"PW-WIN"** computer program.

37. APPENDIX A – Variables for printouts

37.1. Inventory of variables

Notice:
Every variable needs to be included in brace brackets e.g. {x}, where x – variable number.

A list of variables accessible in the system for defining printout templates and data displayed in the workspace of scale's screen:

Symbol	Description
{0} [1)]	Standard printout in calibration unit
{1} [1)]	Standard printout in current unit
{2}	Date
{3}	Time
{4}	Date & Time
{6}	Net mass in current unit
{7}	Net mass in calibration unit
{8}	Gross mass
{9}	Tare
{10}	Current unit
{11}	Calibration unit
{12}	Minimum threshold
{13}	Maximum threshold
{14}	Batch number
{15}	Cumulative Statistics: Number
{16}	Cumulative Statistics: Sum
{17}	Cumulative Statistics: Average
{18}	Cumulative Statistics: Minimum
{19}	Cumulative Statistics: Maximum
{20}	Cumulative of Cumulative Statistics: Quantity
{21}	Cumulative of Cumulative Statistics: Sum
{22}	Cumulative of Cumulative Statistics: Average
{23}	Cumulative of Cumulative Statistics: Minimum
{24}	Cumulative of Cumulative Statistics: Maximum
{25}	Mass: lb

{26}	Checkweighing
{27}	Value to pay
{28}	C Value (cumulative amount to pay)
{29}	CC value (cumulative of cumulative amount to pay)
{30}	Gross (amount to pay + VAT)
{31}	Platform number
{32}	Factory Number
{33}	Scale division
{34}	Range
{35}	Counting pieces: Sample weight
{36}	Deviations: Sample weight
{37}	Statistics: Standard deviation
{38}	CC Statistics: Standard deviation
{39} [2)]	Universal variable
{40}	Text information
{50}	Product: Name
{51}	Product: Code
{52}	Product: EAN Code
{53}	Product: Mass
{54}	Product: Tare
{55}	Product: Unit price
{56}	Product: Minimum
{57}	Product: Maximum
{58} [3)]	Product: Testing Prepackages mode (CPG)
{59}	Product: Number of validity days
{60}	Product: VAT
{61}	Product: Date
{62}	Product: Expiry Date
{63} [3)]	Product: Density
{64} [4)]	Product: Ingredients
{65}	Product: Description
{75}	Operator: Name
{76}	Operator: Code
{77}	Operator: Access level
{80}	Package: Name
{81}	Package: Code

{82}	Package: Mass
{85}	Client: Name
{86}	Client: Code
{87}	Client: Tax ID
{88}	Client: Address
{89}	Client: Postal code
{90}	Client: City
{91}	Client: Discount
{100} [3)]	CPG Report: Batch Number
{101} [3)]	CPG Report: Start date
{102} [3)]	CPG Report: End date
{103} [3)]	CPG Report: Result
{104} [3)]	CPG Report: Batch quantity
{105} [3)]	CPG Report: Number of Measurements
{106} [3)]	CPG Report: T1 error border
{107} [3)]	CPG Report: 2T1 error border
{108} [3)]	CPG Report: Number of T1 errors
{109} [3)]	CPG Report: Acceptable number of T1 errors
{110} [3)]	CPG Report: Number of 2T1 errors
{111} [3)]	CPG Report: Total
{112} [3)]	CPG Report: Min
{113} [3)]	CPG Report: Max
{114} [3)]	CPG Report: Average
{115} [3)]	CPG Report: Limit of the average
{116} [3)]	CPG Report: Standard deviation
{117} [3)]	CPG Report: Measurements
{118} [3)]	CPG Report: Unit
{119} [3)]	CPG Report: Report Number
{120} [3)]	Average Tare Report: Date
{121} [3)]	Average Tare Report: Result
{122} [3)]	Average Tare Report: Standard deviation
{123} [3)]	Average Tare Report: 0.25T1
{124} [3)]	Average Tare Report: Number of Measurements
{125} [3)]	Average Tare Report: Measurements
{126} [3)]	Average Tare Report: Report Number

{130}	Source Warehouse: Name
{131}	Source Warehouse: Code
{132}	Source Warehouse: Description
{135}	Target Warehouse: Name
{136}	Target Warehouse: Code
{137}	Target Warehouse: Description
{140}	Net mass in calibration unit: Total
{141}	Additional display: WD
{142}	Additional display: WWG
{143}	Hex
{144}	Hex UTF8
{145}	Partial mass
{146}	Gross mass in current unit
{147}	Tare in current unit
{148}	Additional display: PUE7
{155}	Density: Start date
{156}	Density: End date
{157}	Density: Method
{158}	Density: Standard liquid
{159}	Density: Standard liquid density
{160}	Density: Temperature
{161}	Density: Sinker volume
{162}	Density
{163}	Density: Unit
{164}	Density: Sample number
{165}	Density: Weighing 1
{166}	Density: Weighing 2
{167}	Density: Weighing 3
{168}	Density: Volume
{169}	Density: Pycnometer mass
{170}	Density: Pycnometer density
{175}	Recipe: Name
{176}	Recipe: Code
{180}	Recipe report: Start date
{181}	Recipe report: End date
{182}	Recipe report: Result

{183}	Recipe report: Number of measurements
{184}	Recipe report: Total
{185}	Recipe report: Measurements
{186}	Recipe report: Nominal mass
{187}	Recipe report: Difference
{190} **3)**	Comparator: Report number
{191} **3)**	Comparator: Start date
{192} **3)**	Comparator: End date
{193} **3)**	Comparator: Order number
{194} **3)**	Comparator: Tested standard number
{195} **3)**	Comparator: Reference standard number
{196} **3)**	Comparator: Measurements
{197} **3)**	Comparator: Average difference
{198} **3)**	Comparator: Standard deviation
{199} **3)**	Comparator: Number of cycles
{200} **3)**	Comparator: Method
{205}	Adjustment track record: Nominal Mass
{206}	Adjustment track record: Platform number
{210} **3)**	Vehicle: Name
{211} **3)**	Vehicle: Code
{212} **3)**	Vehicle: Description
{213} **3)**	Vehicle scale: Start date
{214} **3)**	Vehicle scale: Status
{215} **3)**	Vehicle scale: Entry mass
{216} **3)**	Vehicle scale: Exit mass

Notice:

1) *Variables {0} and {1} is terminated by CR LF, i.e. the cursor is moved to the beginning of the next line by default,*

2) *In case of variable {39}, each position from the database (1,2-n) is formatted as follows: Position 1 - {39:1}, Position 2 - {39:2}, etc.*

3) *Variables not related to* ***„Standard software”****,*

4) *In case of variable {64}, each line (L1-Ln) is formatted according to the template: Line 1 - {64:L1}, Line 2 - {64:L2}, etc.*

37.2. Formatting variables

Users can format numeric, text and date variables intended for displaying or printing out.

Different format commands:

- Justification to the left,
- Justification to the right,
- Setting the number of characters for printout / display,
- Declaration of the number of digital places for numeric variables,
- Date&Time formatting,
- Formatting numeric variables for EAN13 codes,
- Formatting numeric variables and dates for EAN128/GS1-128 codes.

Format characters:

Character	Description	Example
,	Separates variables from format strings	**{7,10}** – Net mass in calibration unit situated in 10-character string justified to the right.
-	Minus sign or justification to the left	**{7,-10}** - Net mass in calibration unit situated in 10-character string justified to the left
:	Precedes formatting or separates hours, minutes and seconds	**{7:0.000}** - Net mass in calibration unit always with three decimal places ; **{3:hh:mm:ss}** – Present time in the format : hours : minutes : seconds
.	The first dot in the format string determines the location of the decimal separator in the formatted value; any additional dot characters are ignored.	**{55:0.00}** – Unit price always with two decimal places; **{17:0.0000}** – Average value form weighings with four decimal places;
F	The number is converted to a string of the form "-ddd.ddd…" where each 'd' indicates a digit (0-9). The string starts with a minus sign if the number is negative.	**{7:F2}** - Net mass in calibration unit always with two decimal places. **{7,9:F2}** - Net mass in calibration unit always with two decimal places in 9-character string justified to the right.
V	Formatting mass and derivatives for EAN13 codes	**{7:V6.3}** - Net mass for EAN13 (6-character code) with three decimal characters
T	Formatting of masses and values deriving from mass in EAN128 code	**{7:T6.3}** – Net mass for EAN128/GS1-128 with two decimal places.

/	Date separator between days, months and years	**{2:yy/MM/dd}** – Present date formatted as: year - month - day, where **yy** represents two less significant digits of year.
****	„Escape" character removing formatting function form next character to allow it to be used as a character in a text string.	**{2:yy\/MM\/dd}** – Present date formatted as years / month / day; **{2:yy\:MM\:dd}** –Present date formatted as: year : month : day. In case of necessity of using **„\"** as literal it should be preceded by another escape character "\\".

Format examples:

Symbol	Description
{7:V6.3}	Net mass for EAN 13 (6-character code)
{7:V7.3}	Net mass for EAN 13 (7-character code)
{27:V6.3}	Net amount to pay for EAN 13 (6-character code)
{27:V7.3}	Net amount to pay for EAN 13 (7-character code)
{7:T6.3}	Net mass for EAN 128/GS1-128
{16:T6.3}	Cumulative net mass for EAN 128/GS1-128
{21:T6.3}	Cumulative of cumulative net mass for EAN 128/GS1-128
{25:T6.3}	Net mass in lb for EAN 128/GS1-128
{8:T6.3}	Gross mass for EAN 128/GS1-128
{55:T6}	Product price for EAN 128/GS1-128
{2:yyMMdd}	Date for EAN 128/GS1-128
{61:yyMMdd}	Product date for EAN 128/GS1-128
{62:yyMMdd}	Expiry date for EAN 128/GS1-128
{16:V6.3}	Cumulative net mass for EAN 13 (6-character code)
{16:V7.3}	Cumulative net mass for EAN 13 (7-character code)
{28:V6.3}	Total/cumulative amount to pay for EAN 13 (6-character code)
{16:V7.3}	Total/cumulative amount to pay for EAN 13 (7-character code)
{21:V6.3}	Cumulative of cumulative net mass EAN 13 (6-character code)
{21:V7.3}	Cumulative of cumulative net mass EAN 13 (7-character code)
{29:V6.3}	Total/cumulative of cumulative amount to pay EAN 13 (6-character code)
{29:V7.3}	Total/cumulative of cumulative amount to pay EAN 13 (7-character code)

38. APPENDIX B – Functions of programmable buttons

Icon	Function name
	Print
	Zero
	Tare
	Enter tare
	Parameters
	Local Parameters
	Set MIN and MAX
	Statistics (cumulative) : Print and zero
	Statistics (cumulative) : Print
	Statistics (cumulative) : zero
	Statistics (cumulative of cumulative) : Print and zero
	Statistics (cumulative of cumulative) : Print
	Statistics (cumulative of cumulative) : zero
	Edit batch number
	Start

	Stop
	Choose an operator
	Choose an operator by name
	Choose an operator by code
	Choose a product
	Choose a product by name
	Choose a product by code
	Choose a package
	Choose a package by name
	Choose a package by code
	Choose a client
	Choose a client by name
	Choose a client by code
	Choose a source warehouse
	Choose a source warehouse by code
	Choose a target warehouse
	Choose a target warehouse by name

	Choose a target warehouse by code
	Change working mode
	Counting pieces: Specify piece mass
	Counting pieces: Estimate piece mass
	Counting pieces: Ascribe standard
	Deviations: Specify sample mass
	Deviations: Estimate sample mass
	Emergency stop
	Chute permission
	Disable tare
	Restore tare
	Change unit
	Change platform
	Edit universal variable 1
	Edit universal variable 2
	Edit universal variable 3
	Edit universal variable 4

	Edit universal variable 5
	Choose a vehicle *
	Choose a vehicle by name *
	Choose a vehicle by code *
	Choose transaction *
	Start entry transaction *
	Start exit transaction *
	Select recipe
	Select recipe by name
	Select recipe by code
	Determine liquid density
	Determine solid density
	Determine pycnometer density
	Determine porous body density

***) –** Functions of programmable buttons not related to **„Standard software”**.

39. APPENDIX C – Label template

A label template can be created in 2 ways:

- From the terminal level using variables,
- Using PC software **EDYTOR ETYKIET R02**. A created project needs to be saved as an **„lb”** file then copied on a pendrive that can be connected to the terminal. Finally transfer the file to the database in the scale.

While a label is in the database of labels it can be ascribed to products or/and clients in order to work in labelling mode.

39.1. Designing a label from the terminal level

Procedure:

- Enter **<** **Databases>** according to ch. 30 of this manual,
- Enter **<** **Labels>** and press on the required position.
- After entering **<** **Label template>** an editing field with the screen keyboard appears
- Modify the existing template using the list of variables accessible after pressing ,
- Confirm changes by pressing .

Notice:

In the bottom line of the screen keyboard there are additional buttons that help to modify a label template:

Screen keyboard on / off

*Read label templates from *.lb files (see – ch. 39.3)*

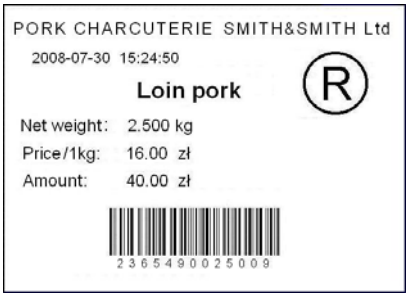
Select variables for the display template (inventory of variables can be found in APPENDIX A)

Clearing the editing field

39.2. Designing a label on a computer

Example:

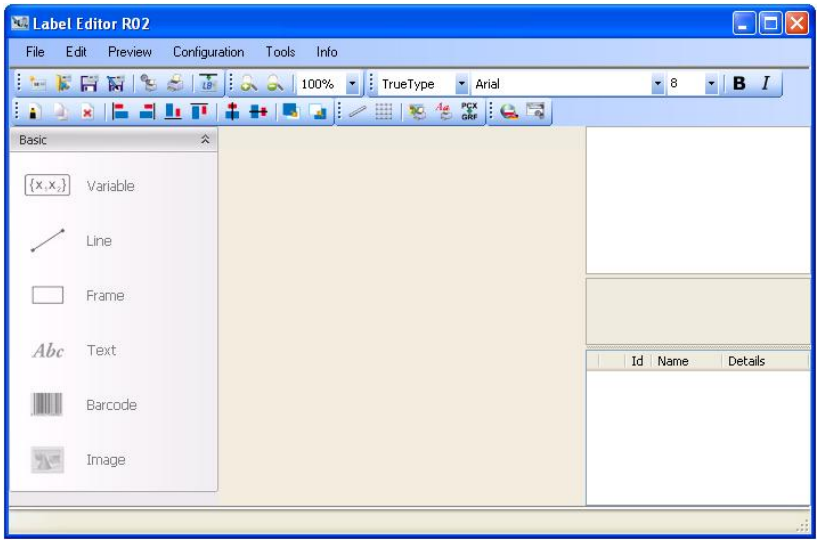
Let us create a label template for the label below:



Notice:
*The installer of **EDYTOR ETYKIET R02** is accessible to download on website: **www.radwag.com** on the overlap: Products / Measuring indicators / PUE HY.*

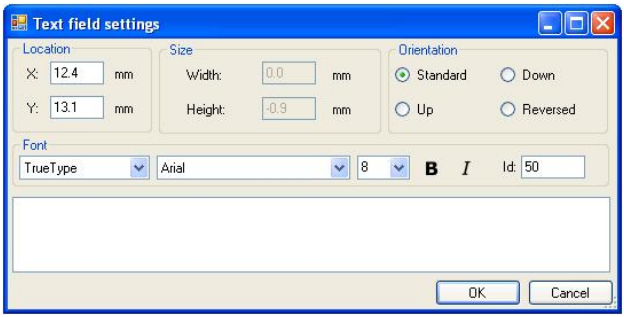
Procedure:

1. Run computer program **LABEL EDITOR R02**, then the main window of the program is displayed:



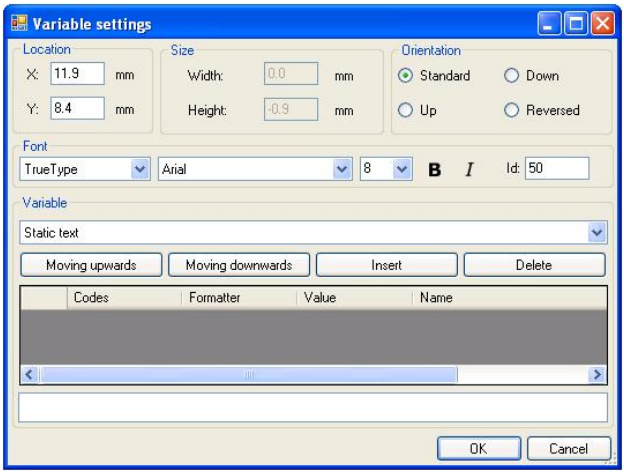
Notice:
Prior to designing a label a new project needs to be created with initial printer and label settings. A description of creating new projects can be found in instruction manual „Label Editor R02" accessible in the program menu: „Info / User manual".

2. In order to add a text to the label chose **<Abc Text>** from the list of objects and then click on the workspace of label, then window **<Text field settings>** opens:



3. Type the required text in the box at the bottom of the window: PORK CHARCUTERIE SMITH&SMITH Ltd and press OK to confirm, then the text is put automatically on the label,

4. In order to add a variable to the label chose **<{x1x2} Variable>** from the list of objects and then click on the workspace of label, then window **<Variable settings>** opens:

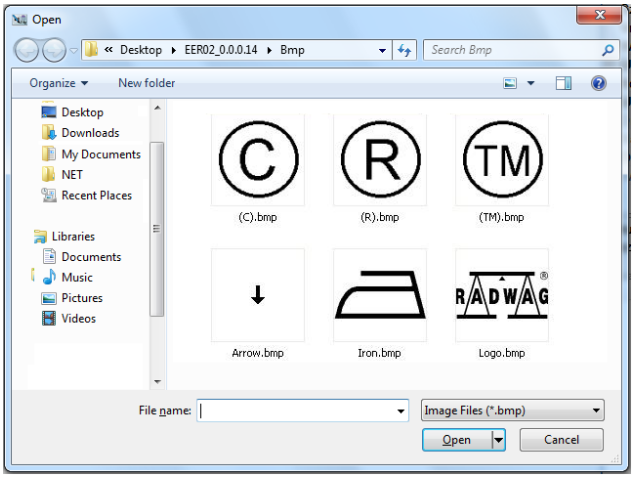


5. From list **<Variable>** chose variable type **„4 Date and time”** and press Insert, then the variable is placed in the table of variables show below.

6. Confirm it by pressing OK, and then the variable is automatically placed on the label.

7. Place the rest of variables and constant texts on the label in the same way,

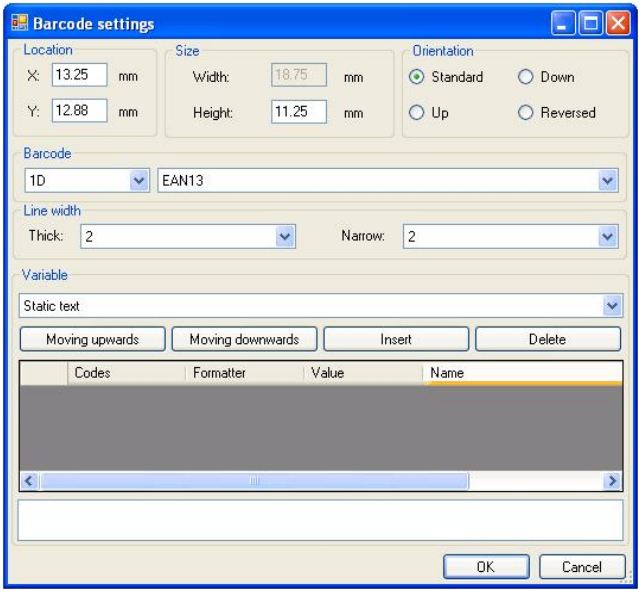
8. In order to put an image on the label chose **<** **Image>** from the list of objects and then click on the workspace of label, then window **<Open>** opens:



9. Chose one and press **<Open>**, then the image is placed on the label.

Notice:
Graphic images placed on the label can be printed only when they are downoladed to the printer memory. It is described in the instruction manual „Label Editor R02” accessible in the program menu on the overlap: „Info / User manual”.

10. In order to add a barcode to the label chose **<** **Barcode>** and then click on the workspace of label, then window **<Barcode settings>** opens:



11. Chose **<Barcode>** from the list e.g. **EAN-13**.

12. Chose from list **<Variable>** item **„7 Net mass in adjustment unit”** and press Insert, then the variable is placed in the table of variables show below.

13. In column **<Formatter>** type**:V6.3** (mass in EAN13 as a 6-digit code with 3 decimal places).

14. Confirm the entered item by pressing OK, and then the barcode is automatically placed on the label.

15. Save the created pattern choosing from the menu **„File / Export *.lb”**.

Notice:
*Recorded templates of labels in files with ***.lb** extension are not editable. This is advisable to record designs of labels in files with ***.lab** extension as well (software menu: File / Save as…) to use/edit the designs of labels in the future.*

39.3. Saving label templates in the scale

Procedure:

- A label template ***.lb** created in **EDYTOR ETYKIET R02** needs to be copied to a pendrive,
- Connect the pendrive to USB in the scale,
- Enter: **„** **Parameters /** **Databases /** **Labels”** and press the required item,
- Enter **<** **Label templates>**, then an editing field and the screen keyboard appears,
- Press , to open a window showing files on the pendrive,
- Select the required ***.lb** file. It is automatically copied to the editing field,
- Confirm the changes by pressing .

Notice:

If a pendrive is not recognized by the system button *will remain inactive.*

39.4. Attributing a label to a product

Procedure:

- Enter **<** **Databases>** according to ch. 30 of this manual,
- Enter **<** **Products>** and press the required item,
- Enter **<** **Label>**, then the database of labels is open with the list of all labels,
- Choose the required label. The program automatically ascribes the label to the product.

39.5. Attributing a label to a client

Procedure:

- Enter **Databases>** according to ch. 26 of this manual,
- Enter **Clients>** and press the required item,
- Enter **Label>**, then the database of labels is open with the list of all labels,
- Choose the required label. The program automatically ascribes the label to the client.

39.6. Printing labels

Procedure:

- While in the main window choose a product (button F1) or a client (button F2) that has attributed a label,
- Place a load on the pan and wait for ◣◢ then press **ENTER/PRINT**,
- The label is printed on a printer connected to the scale.

Notice:

1. *Labels can be attributed to products or/and clients. After pressing* **ENTER/PRINT** *a label is printed on a connected printer, provided a selected client or product has an ascribed label.*
2. *Users can perform the test label printout – see ch. 30.5 of this manual.*

40. APPENDIX D - CITIZEN printer setting

Baud rate	**: 9600b/sec**
Parity control	**: No**
Number of data bits	**: 8bit**
Number of stop bits	**: 1 bit**
Flow control	**: No**
IEEE 1284	**: ON**

Information printed by the printer via RS232:

[Interface Menu]
RS-232C Baud rate : **9600bps**
RS-232C Parity : **None**
RS-232C Length : **8 bit**
RS-232C Stop bit : **1 bit**
RS-232C X-ON : **No**
IEEE 1284 : **On**

The way of generating the setup printout and setting CITIZEN printers are described in manuals attached to printers or present on the website of the manufacturer.

41. APPENDIX E - ZEBRA printer setting

Baud rate – 9600b/sec
Parity control – none
No of data bits – 8bit
No of stop bits – 1 bit

Information printed by the printer via RS232:

Serial port : **96, N, 8, 1**

The way of generating the setup printout and setting ZEBRA (Eltron) printers are described in manuals attached to printers or present on the website of the manufacturer.

42. APPENDIX F - Communication with barcode scanners

1. For communication with barcode scanners RADWAG scales use RS232 interfaces and simplex transmission (one direction) without handshaking. Only two wires are required for assuring such a transmission. Used scanners should be equipped in such interface with disabled both hardware and software handshaking.
2. Both scales and scanners have the possibility of setting of transmission parameters. Both devices are required to have the same parameters set : baud rate, number of data bits, parity control, stop bits. e.g. 9600,8,N,1 – baud rate 9600 bit/s, data 8-bits, no parity control, 1 stop bit.

3. Barcode scanners can send additional information apart from the expected barcode e.g. symbology (type of barcode). It is advisable to disable such information because RADWAG devices and software do not use it.
4. Some RADWAG systems can omit unnecessary information by using parameters that mark the beginning and the length of the code required to analyse.
5. A special protocol is required in order the code be received by RADWAG equipment. It is required to program an appropriate *prefix and suffix*. Prefix – one byte 01 hexadecimally, suffix one byte 0D hexadecimally.
6. Most barcode scanners allow to enable/disable different symbologies (barcode types).
7. Programming of scanners is usually performed by reading special barcodes or by using an external software tool.
8. Scanners marketed together with RADWAG systems are always configured according to the rules above.

Barcode with required prefix and suffix in hexadecimal format	**Barcode without required –fixes in ASCII format**	**Code type**
01 30 30 32 31 30 31 32 36 0D	00210126	EAN-8
01 30 31 32 33 34 35 36 37 38 39 0D	0123456789	2 of 5
01 43 4F 44 45 20 33 39 20 54 45 53 54 0D	CODE 39 TEST	CODE 39
01 31 31 30 31 32 33 34 35 36 37 38 39 31 0D	1101234567891	EAN-13
01 43 6F 64 65 20 31 32 38 20 54 65 73 74 0D	CODE 128 Test	CODE 128

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